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ABSTRACT

This project evaluates the research instruments measuring motivation, incentives, satisfaction, and primary life interests; develops basic research conclusions from the variable relationships; and builds a quasi-theory of satisfaction for educational organizations. Three thousand four hundred randomly selected public school teachers in Kansas participated in the study. A mail questionnaire was used to collect data on 14 variables: sex motivation factors, six matched incentive factors, primary life interests, and satisfaction. Primary crossbreak variables for analysis purposes were sex and teaching level. Interrelationships were investigated using multiple regression and discriminant analysis techniques. The findings indicated that the female elementary and secondary teachers who scored higher on satisfaction were more job oriented, had a job in which there was a higher potential for personal challenge and development, less work pressure, and more incentives relating to physical surroundings, and where the tolerance for work pressure was higher. Male elementary teachers who scored higher on satisfaction were more job oriented. Three additional variables--work role, voluntarism, ideal incentives--were added to build a quasi-theory of satisfaction. A 31-item bibliography and appendixes are included. (Author/MJM)

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Final Report

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The University of Kansas
Lawrence, Kansas 66044

PUBLIC SCHOOL TEACHERS' WORK MOTIVATION, ORGANIZATIONAL INCENTIVES, JOB SATISFACTION, AND PRIMARY LIFE INTERESTS

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ABSTRACT

Title of Project: Public School Teachers' Work Motivation, Organizational Incentives, Job Satisfaction and Primary Life Interests

Principal Investigators: Cecil G. Miskel, Douglas R. Glasnapp, and Richard V. Hatley

Contracting Agency: The University of Kansas

Duration of Activity: 06-15-71 through 06-14-72

Purpose. The project purpose was threefold: (a) To evaluate the research instruments measuring motivation, incentives, satisfaction, and primary life interests. (b) To develop basic research conclusions from the variable relationships. (c) To build a quasi-theory of satisfaction for educational organizations.

Procedures. The sample consisted of 3400 randomly selected public school teachers in Kansas. A mail questionnaire was used to collect data on fourteen variables: six motivation factors, six matched incentive factors, primary life interests, and satisfaction. Controls were built into the design to minimize and evaluate response bias. Primary crossbreak variables for analysis purposes were sex and teaching level. Interrelationships were investigated using multiple regression and discriminant analysis techniques.

Results and Conclusions. The four measures were evaluated as meeting subscale factorial stability and reliability requirements. The findings indicated that female elementary and secondary teachers who scored higher on satisfaction also were more job oriented, had a job in which a higher potential for personal challenge and development existed, where less work pressure existed, where more incentives relating to physical surroundings existed, and the tolerance for work pressure was higher. Male elementary teachers who scored higher on satisfaction were more job oriented. Three additional variables--work role, voluntarism, ideal incentives--were added to build a quasi-theory of satisfaction.

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Introduction

In over three hundred years of American experience with education, teaching has been associated with the following themes: religious and moral concerns, low income, and limited prestige. Consequently, the rewards for teaching have been viewed as being primarily intrinsic. Lortie (1969) supported this assertion when he posited that a "dedicatory ethic" developed among teachers which elevated service motives at the expense of material benefits as the proper motivation to work. As a result the ideology developed which maintained that the proper orientation toward teaching was a willingness to serve children with little thought of economic or other extrinsic incentives.

Sanctions and strikes coupled with growing militancy of teachers reflect a change in the foregoing ideology. Indeed, the current teacher unrest has fostered the development of a new ideology. An ideology that purports teachers have lost interest in teaching, an ideology in which teachers are alienated, and finally an ideology that teachers primarily value extrinsic incentives. The new ideology is abundantly supported by personal attitudes and/or limited biased experiences.

Existing empirical studies and theoretical frameworks which specifically relate motivation and incentives in educational organizations are conceptually weak and empirically contradictory. Consequently, those who have strong opinions in this area become more convinced of the validity of their ideologies. As a first step in replacing these ideologies, basic research guided by existing conceptual formulations from other types of organizations should be completed to describe and explain teacher motivation and organizational incentives in a new and more elaborate theoretical framework.

Problem

The basic problem is the lack of a theoretical formulation which describes, explains, or predicts the relationships between teacher motivation and organizational incentives to work. Furthermore, the theoretical positions which have been developed relate primarily to industrial organizations and have had limited testing and adaption for use in the school organization. Specific questions considered in the present study were as follows:

(a) What are the motivations of teachers to work?
(b) What are the organizational incentives returned to teachers for contributing to the organization?
(c) What are the relationships between individual motives and organizational incentives in predicting levels of satisfaction?
(d) Does primary life interest increase the prediction of job satisfaction?

Review of Literature and Related Research

Motivation is any combination of forces which maintain human activity. On the other hand, incentives are the inducements placed along the course of on going activities by the organization to keep the activities directed toward one goal rather than another (Dubin, 1968). It is apparent that these concepts are opposite sides of the same coin. Additionally, this is an example of the common dilemma in organizational theory of relating the individual and the organizational dimensions of a social system. In an effort to resolve this dilemma and strengthen the rationale for the current problem, individual motivation to work will be considered first and will be followed with a consideration of organizational incentives. The two dimensions will be systematically related by the introduction of the level of job satisfaction and the primary life interests.

Motivation

Specifically, motivation is the complex of forces starting and keeping a person at work in an organization. More generally, motivation starts and maintains an activity of an individual along a prescribed line. Clearly there are forces (drives, instincts, tension states, psychological mechanisms) inside the person starting and maintaining activity. However, it is also clear that behavior is highly organized by the social environment; that is, the social setting of behavior defines the appropriate channels of individual expression. Dubin (1968) elaborated the foregoing position by noting that in recent years behavioral scientists are tending to agree that there is not a general cause and effect connection between specific psychological motivation mechanisms and specific behaviors. A reason for this is the difficulty, if not impossibility, of establishing a one-to-one relationship between something called an internal motivating force and a resulting activity. One current view suggests that internal motivating forces start the human being in action, and sustain his activity, but that the determinants of particular actions are outside the person in the social structure (Maslow, 1970). This is not to say that an individual can not exhibit meaningful behavior, but once a person becomes socialized to the work organization, he automatically falls into a pattern of motivation initiating and sustaining activities. Furthermore, the motivational system is stable, permanent, and understood by the members of the organization (Dubin, 1968).

Currently, a leading theory of human motivation is based in a need hierarchy concept (Maslow, 1970). The hierarchy concept is stressed with certain higher needs becoming activated to the extent that certain lower needs become satisfied. The five basic needs are identified as follows:

(a) The physiological needs such as hunger, thirst, and sex;
(b) The safety needs for protection against danger, threat, and deprivation;
(c) The love needs for satisfactory associations with others, for belonging to groups, and for giving and receiving friendship and affection;
(d) The esteem needs for self-respect and for the respect of others, often referred to as the ego or status needs;

(e) The self-actualization or self-fulfillment needs to achieve the potential within himself, for maximum self-development, and for creativity and self-expression.

These needs are related to each other and arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend to evoke behavior in response to it.

The lower level needs are never completely satisfied and if their satisfaction is deprived for any period of time, they become potent motivators. On the other hand, a completely satisfied need is not an effective motivator of behavior. Esteem and self-actualization needs are rarely satisfied and must be sought after indefinitely for more satisfaction once they become important to the individual.

Herzberg, Mausner, and Snyderman (1959) completed a research study of industrial employees' motivation to work and subsequently developed a two-factor theory of job satisfaction. These investigators interviewed 203 accountants and engineers. The respondents were asked to describe events they experienced at work which had resulted in (a) a marked improvement or (b) a significant reduction in job satisfaction.

Using content analysis, it was found that positive events were dominated by reference to intrinsic aspects of the job (achievement, recognition, work itself, responsibility, advancement), while the negative events were dominated by extrinsic factors (salary, possibility of growth, interpersonal relations with subordinates, status, interpersonal relations with superiors, interpersonal relations with peers, supervision-technical, company policy and administration, working conditions, personal life, and job security). From the foregoing findings, it was posited that the presence of certain factors would act to increase the individual's job satisfaction, but the failure of these factors to occur would not necessarily give rise to job dissatisfaction. Theoretically, an individual would operate from a neutral point possessing neither positive nor negative attitudes towards his job. The gratification of certain factors which could be called "satisfiers", would increase his job satisfaction beyond the neutral point but would lead only to minimal dissatisfaction. There would be, on the other hand, a set of "dissatisfiers" which would evoke negative attitudes creating job dissatisfaction. The elimination of these dissatisfiers would lead only to minimal job satisfaction. Consequently, all "satisfiers" combined would contribute more to job satisfaction than to job dissatisfaction, and all "dissatisfiers" combined would contribute more to job dissatisfaction than job satisfaction. King (1970) maintained that research completed in the industrial setting since the original study supports the foregoing generalization.

The satisfier factors are labeled motivators, implying their effectiveness in evoking individual behavior toward superior performance. The environmental variables are labeled hygiene factors, indicating an analogy to the concept of preventive maintenance. However, other authors who have written in the area of work motivation have employed a variety of terminology. Wolf (1970) noted that the motivator factor has been called the intrinsic factor, the satisfiers, and the job content factor. The other factor has been called the hygiene factor, the maintenance factor, the extrinsic factor, the dissatisfiers, and the job context factor.

Herzberg et al. (1959) in conceptualizing the two factor theory of job satisfaction related it to the need-hierarchy concept described previously. They asserted that the factors leading to positive job attitudes have done so because they have the potential to satisfy the individual's need for self-actualization. The most important opportunity for self-actualization would be the job. From the performance of the task, the employee can achieve the rewards that will reinforce self-actualization. Accordingly, the factors (satisfiers, motivators) of the job itself motivate the individual to gratify his need for self-actualization. Conversely, the dissatisfiers or hygienes can be related to physiological and safety needs. Hygienic factors must meet individual needs for job security, fair treatment, interpersonal relations and working conditions. When the job surroundings become conducive to these needs, dissatisfaction is reduced. Hence, hygienic factors do not normally have the potential to become "motivators" since hygiene pertains only to surroundings of the job.

Using this relationship between "hygiene" and "motivators", important relationships concerning persons and the jobs they occupy can be discussed. The ideal job will provide maximum opportunity for self-actualization and, consequently, motivate behavior. As such, the present study posits that within a school organization, the opportunity to achieve, to be recognized, to advance, and to enjoy the work itself act as incentives and allow for intrinsic motivation. Theoretically, the greater these intrinsic opportunities, the more satisfied the person will be. Additionally, it would seem reasonable to assert that a person in this position could tolerate more adverse surrounding conditions. Conversely, if a person is placed in a job where only menial tasks are required, little motivation can result. So, in order for the person to get minimal satisfaction, hygiene must be great.

Sergiovanni (1967) replicated the Herzberg study in an educational organization. Seventy-one teachers were interviewed. The interview transcripts were then coded using a content analysis technique. He concluded that the findings supported the assertion that satisfiers and dissatisfiers tend to be mutually exclusive. In addition, factors which accounted for positive attitudes of teachers were related to the work itself and factors which accounted for low attitudes of teachers were related to the conditions of work.

Borgatta (1967) developed the Work Components Study (WCS) instrument which was designed to operationalize Herzberg's two factor theory of work motivation. Ford, Borgatta, and Bohrnstedt (1969) found that new college-level employees of industrial organizations who scored the highest on a WCS subscale measuring intrinsic motivation were perceived by the company as moving ahead most rapidly.

Using a modified form of the WCS for educational employees, Miskel (1972) made a somewhat parallel finding to the foregoing with a sample of undergraduate senior education students, teachers, and administrators. In testing the assertion that individuals who are upward mobile will be intrinsically motivated in unstable situations with less concern for security, Miskel found the following: (a) principals have the highest tolerance for work pressure, (b) central office administrators have the least desire for conservative security, and (c) those individuals aspiring to the doctorate scored significantly higher on competitiveness

desirability, tolerance for work pressure, and willingness to seek reward in spite of uncertainty.

The above findings of Ford, et al. (1969) and Miskel (1972) lend indirect support to the theoretical position of Vroom and Deci (1970). They posited that the performance of a person on a job is a function of that person's skill or ability and his motivation to use this skill or ability in the actual performance of the job. Furthermore, performance is equal to the product of an individual's ability and motivation rather than being equal to the sum of these two variables.

Incentives

Incentives as the organizational counterpart to individual motivation have a fundamental role in organizations. One reason that incentives are vital to an organization is that the motivation to contribute personal efforts are influenced by incentives. Indeed, inadequate incentives mean dissolution, changes of organizational purpose, or failure of cooperation.

Barnard (1938) designated the process of offering objective incentives as being the method of incentives which consists of two general classes--specific inducements and general incentives. The specific inducements are well defined and include material inducements (money, things), personal non-material inducements (distinction, prestige, power), desirable physical conditions of work (good lighting, clean classroom), and ideal benefactions (personal ideals, goals, priorities). These are personal in nature and are designed to motivate the individual toward cooperative work in the group by providing him with personal rewards that have utility to him.

The general incentives include associational attractiveness (social compatibility), adaptations of conditions to habitual methods and attitudes (school routine), the opportunity of enlarged participation (shared decision-making), and the condition of communion (support by the informal organization in regard to what the proper personal attitudes should be). These are of a non-material nature and more complex because they involve more than a single individual; that is, they are created in relation to a social group. For this reason, the organization has difficulty in controlling their distribution.

Further understanding of organizational incentives has been provided in a study by Dubin (1970). The study was designed to describe sources of attachment to work. More than three thousand industrial workers were asked to select from a list of 124 items (each of which represented a source of work attachment) the things about their work which were of importance to them. The questionnaire included a separate job satisfaction question providing five alternative responses among which the respondent chose one. The five responses were: very satisfied, satisfied, indifferent, dissatisfied, and very dissatisfied.

Dubin (1970) asserted that the most general finding was that the vast majority of work attachment items (ninety-five or seventy-seven percent) were systematically related to job satisfaction. Furthermore, two systematic relationships emerged. (a) A parabolic relationship was found for

seventy-three of the ninety-five significant relationships. In other words, the extreme categories of job satisfaction showed a higher proportion choosing the item than the middle categories. (b) In the case of twenty-two work attachment items there was a linear relationship with job satisfaction such that the proportion choosing the item systematically either rises with increasing satisfaction or decreases. These findings were apparent from the raw data.

In addition, three more general findings were delineated as follows: (c) Dissatisfied workers value extrinsic job factors, autonomy in work, and payoffs from working. (d) Satisfied workers value extrinsic job factors (but not the same ones as dissatisfied workers) and cooperation at work. (e) Indifferent workers value extrinsic job factors, autonomy in work, payoff for working and cooperation at work. Therefore, Dubin concluded that people who are indifferent in their job satisfaction are not indifferent about work because they have strong sources of attachment to work.

Based on the findings of parabolic and linear relationships and the unique sources of work attachments for satisfied, dissatisfied, and indifferent work groups, Dubin (1970) developed a three tier incentive system. Minimal incentives which would include work attachment items considered equally important at all levels of job satisfaction constitute Tier I. Indifferent workers would receive the minimal incentives plus those in Tier II. Some of the work attachment items would be shared with both satisfied and dissatisfied workers, although indifferent workers are somewhat more like dissatisfied workers than satisfied workers. Finally, Tier III consists of two different and additional incentives packages with one designed for dissatisfied workers and the second designed for satisfied workers.

A replication of the 1970 Dubin study by Fuller and Miskel (1972) in the public schools revealed a somewhat different set of findings. Consequently, a modification of the three tier incentive system was proposed. In support of Dubin's theory, teachers selected 75 percent of the work features considered important by industrial workers. However, while indifferent industrial workers did not select incentive items more frequently than satisfied and dissatisfied workers, the indifferent teachers selected a larger proportion of items more frequently than did satisfied or dissatisfied teachers.

On the basis of their findings, Fuller and Miskel (1972) proposed a two tier incentive system for teachers. Minimal incentives considered equally important by satisfied, indifferent, and dissatisfied teachers compose the lowest tier. The work attachments in this tier are related to the following: interpersonal relationships, extrinsic work factors, security, and ancillary organizations.

The second tier of incentives include the additional items that are differentially important to each group--the satisfied, the indifferent, and the dissatisfied teachers. Satisfied teachers would receive additional incentives related to achievement and recognition; indifferent teachers would receive additional incentives related to working conditions and work autonomy; and dissatisfied teachers would receive additional

incentives emphasizing ancillary organizations, interpersonal relations with peers and supervisors, and extrinsic work features.

The two tier incentive system shares similarities with the previously discussed theories by Dubin (1970) and Herzberg et al. (1959) for industrial workers. In addition, the responses and the modified incentive system support the assertion that satisfied and dissatisfied teachers value incentives which can be associated to the findings of Sergiovanni (1967) in educational organizations.

Job Satisfaction

Although the satisfaction level of teachers has long been an area of intense interest to researchers in personnel management, a review of the literature relating to education reveals little substantive knowledge (Robinson, 1964). Smith, Kendall and Hulin (1969) attributed this lack of knowledge production in previous studies to simplistic conceptualizations of satisfaction and inadequate research strategies. However, March and Simon (1958) and Adams (1963), as organizational theorists in industry, have developed promising theoretical frameworks for studying job satisfaction. Consequently, the position reflected in the present study is that, by adapting the inducements-contributions theory of March and Simon, the inequity theory of Adams, the empirical research of Smith et al., and further refinements of each to educators and educational organizations, the potential for significant research findings are enhanced.

Before elaborating on satisfaction as the criterion variable, a brief review of the positions supported in the first two parts of this literature review are needed. First, each individual receives from the organization incentives in return for which he makes contributions based on his work motivations to the organization. Second, each individual will continue his participation in an organization only so long as the incentives offered to him are as great or greater (measured subjectively in terms of his motivation) than the contributions he is asked to make.

Smith et al. (1969) define job satisfactions as feelings or affective responses to facets of the situation. Furthermore, feelings of satisfaction are associated with a perceived difference between what is expected as a fair and reasonable return and what is experienced. March and Simon's (1958) general model of satisfaction based on inducements and contributions partially explains the relationships among individual motivation, organizational incentives, and job satisfaction alluded to by Smith et al. The primary assertions of the model as are follows: (a) The lower the satisfaction of the individual, the more search for alternative programs he will undertake. (b) The more search, the higher the expected reward. (c) The higher the expected value of reward, the higher the satisfaction. (d) The higher the expected value of reward, the greater the motivation of the individual. (e) The higher the level of aspiration, the lower the satisfaction. Consequently, motivation to contribute stems from a present or anticipated state of dissatisfaction and a perception of a direct connection between individual contribution and a new state of satisfaction.

Adams (1963) has developed a social inequity theory that is based on Festinger's (1957) theory of cognitive dissonance and roughly parallels the assertions of March and Simon (1958). The basic postulate of Adams' theory is that inequity exists for an individual whenever his perceived job inputs and/or outcomes stand psychologically in obverse relation to what he perceives are the inputs and/or outcomes of similar individuals. The first logical extension of this postulate is that the presence of inequity will motivate the individual to achieve equity or reduce inequity. The second extension is that the strength of motivation to achieve equity will vary directly with the amount of inequity. Finally, the third extension is that satisfaction increases as inequity decreases.

By conceptually merging the foregoing literature, two propositions can be made about teacher motivation, incentives offered by the educational organization, and the level of satisfaction. There will be a congruency between those aspects designated as motivators and the types of incentives offered by the organization as indicated by teachers who are satisfied. Likewise, there will be an incongruency between those aspects designated as motivators and the types of incentives offered by the organization as indicated by teachers who are dissatisfied.

Primary Life Interests

With the above propositions in mind, a dilemma of organizational theory must now be considered. The dilemma, so ably developed by Argyris (1960), postulates a basic incongruency between the needs of a mature personality and the requirements of formal organizations. If the postulate is true, then many teachers would suffer from frustration and dissatisfaction because fulfillment of their self-actualization needs would be blocked. However, Strauss (1963) maintained that the foregoing hypothesis is based on the value judgment that the job should be a primary form of need satisfaction for everyone. But the primary focus of many peoples' lives is not the job, but the home or community. Dubin (1968) supported Strauss when he stated that the basic mechanism by which the dilemma is resolved is that of partial involvement of individuals in particular institutional settings. Given the wide range of areas of daily life, each person selects only a few as primary life interests. In those areas of action that are central to the individual, strong attachments and involvement are developed.

It is in these areas that self-realization and mature healthy personality expressions are achieved. In the remaining areas of required behavior, not primary to the person's interests (including the job), there may be no need for self-realization as it is satisfied elsewhere. Consequently, individuals can meet organizational goals, irrespective of their conflict with personal goals, in situations where the behaviors are not primary to his life interests.

Based on the conceptual position of Strauss (1963) and Dubin (1968), a mediating variable between individual motivation, organizational incentives, and the level of job satisfaction is the primary life interests of the individual. This variable could explain possible variations from the previously developed proposition. For example, using Herzberg's theory of motivation in the school setting there would be a congruency between

intrinsic motivation, intrinsic rewards, and positive satisfaction. However, if an individual's primary life interests are not in the job, a person could be satisfied with his job if the incentives were extrinsic. The reason for this could be that the extrinsic reward would make it possible to expand and enhance the opportunities in the primary life interest area for self-realization. Therefore, an additional proposition relating motivation to work, incentives and job satisfaction can be explained by the individual's primary life interests.

The research findings of Gerhardt and Miskel (1972) lend indirect support to the foregoing conceptual assertions. They found primary life interests to be an intervening variable for predicting satisfaction from conflict; that is teachers whose primary life interests were in the job reported a higher level of conflict and job satisfaction than teachers whose primary life's interests were outside the job.

Research Objectives

After evaluating the foregoing empirical studies and theoretical positions, the following objectives were formulated to guide this investigation:

(a) To evaluate the research instruments which were constructed or modified to study motivation, incentives, satisfaction, and primary life interest.
(b) To develop basic research conclusions from the data regarding the interrelationships among motivation, incentives, satisfaction, and primary life interest.
(c) To evaluate the applicability to the educational organization existing theories of motivation and incentives to work currently related to industrial organizations.
(d) To build a quasi-theory of motivation and incentives to work for educational organizations.

Method

Instruments

Four instruments were used in the present study to provide separate measures of (a) work motivation of teachers, (b) present school organizational incentives, (c) job satisfaction, and (d) primary life interests. The measure of work motivation was an adapted version of the Work Components Study (WCS) developed by Borgatta (1967) and Borgatta, Ford, and Bohrnstedt (1968) in an industrial setting. As developed by Borgatta et al., the WCS operationalized Herzberg's two-factor theory of job satisfaction. Items paralleling Herzberg's motivator and hygiene factors were written in an attempt to "get at" intrinsic and extrinsic factors in work motivation. Responses to each item are given on a five point Likert-scale. The final form of the WCS contained seven independent subscales identified by factor analytic procedures (Borgatta et al., 1968).

This measure was recently revised for use in the educational organization by Miskel and Heller (1972). The adaptation consisted of

changing industrial-related words in particular items to words pertaining to the educational environment, e.g., "A job where the emphasis would be on carrying out clearly outlined company policies" was changed by substituting "school district" for the word "company." Analyses indicated that the structure of the revised WCS consisted of six independent factors of work motivation operating in the school organization. The items describing each of the six factors matched the items identifying each of the six factors as reported by Borgatta et al. (1968). These factors of work motivation are:

(a) Potential for personal challenge and development.
(b) Competiveness desirability and reward of success.
(c) Tolerance for work pressure.
(d) Conservative security.
(e) Willingness to seek reward in spite of uncertainty vs. avoidance of uncertainty.
(f) Surround concern.

The additional factor labeled Responsiveness to new demands identified by Borgatta et al. (1968) seemed to collapse in the educational organization with the subscale measuring Tolerance for work pressure. Additional support for use of the revised WCS includes alpha reliability coefficients (Cronbach, 1951) for the six subscales ranging from .64 to .87. These reliability estimates corresponded with the estimates give by Borgatta et al. (1968).

As part of the present project and preliminary to the main part of the study, data for cross-validation of the adapted WCS (labeled the Educational Work Components Study, EWCS, in this study) were collected and analyzed. Appendixes A, B, and C present a summary of the pilot study findings. Based on the results of this pilot study in conjunction with the results of the study by Miskel and Heller (1972), seven items were deleted. In general, the cross-validation indicated that response patterns are very stable for each of the six subscales within the population of public school teachers. Subscale alpha reliability coefficients for the pilot sample ranged from .74 to .83. EWCS items appear in Appendix D.

To measure incentives operating in the educational organization, items in the revised EWCS were rewritten to appear as incentives and were responded to on a five point Likert-scale. In changing the orientation of the EWCS from an instrument measuring work motivation to one measuring incentives actually operating in the system, one is able to obtain information on not only "what is important to the individual in his work" (work motivation), but also "if things that are important to the individual actually are occurring in the system." By using the same instrument with modifications in directions and wording, the item content was the same for both as items were matched, but in one instance they were measuring motivation and in the other incentives.

Preliminary data on the school organizational incentive scale (INC) from the pilot sample provided assurance that all items were functioning adequately with regard to item response variability. Because items on the INC were matched with those on the revised EWCS to provide an indication of the discrepancy between work motivation and school incentives, similar subscale patterns would not necessarily be expected; therefore,

further analysis of the INC was considered unnecessary in the pilot study. Directions and items are given in Appendix D.

The third instrument used in the present study was a measure of job satisfaction. A search of the literature failed to find a measure with established validity and reliability suitable for the purposes of this investigation. As a result, a series of Likert-scaled items were developed to measure job satisfaction. These items were pretested in the pilot study and resulted in a final scale of six items. This scale also appears in Appendix D.

The last measure was a five-point Likert-scaled series of seven items measuring primary life interests (PLI). As indicated in Appendix C, the results of the pilot data for this scale were not encouraging. Based upon those preliminary pilot results, several new items with high face validity were written and were included in the final version of the instrument. These items also can be found in Appendix D.

Each of the above scales were combined and appeared as a single survey instrument (Appendix D). In addition to the items mentioned, several background items were included. While items were matched in the EWCS and the INC, they did not follow in the same sequence. Items in the INC were scrambled to avoid any response pattern that could cause a relationship between responses on the two scales. The order in which the two instruments appeared in the questionnaire also was counterbalanced (half with the EWCS preceding the INC and half with it following) with the job satisfaction items and PLI items being mixed and always last in order.

Sampling and Data Collection Procedures

The target population in the present study consisted of all public school teachers in the state of Kansas. An up-to-date list containing the names by school districts of 29,564 teachers and other school personnel was obtained from the State Department of Education. Each name on the list was assigned a number beginning from one. A random sample of 3400 individuals was then selected by generating 3400 random numbers between one and 29,564 by computer.[1]

The method of data collection from the 3400 random subjects (Ss) was that of the mail questionnaire. The survey instrument was mailed to each S in a single envelope along with a stamped, addressed envelope for returning the completed questionnaire. Two follow-up mailings spaced approximately three weeks apart to nonrespondents with additional encouragement to reply were made. After replies to the second follow-up mailing had been received, a subsample of 100 nonrespondents was randomly selected and an intensive effort was made to collect data from this subsample. These nonrespondents were personally contacted by telephone at which time the importance of their response was stressed and a commitment to fill out a questionnaire was obtained if possible.

[1]All computations in this study were performed by the Honeywell 635 computer, University of Kansas Computation Center.

As outlined, the above procedure allowed for data to be collected to help protect against invalidation of results due to the greatest disadvantage of mail questionnaires, the nonresponse. In discussing the relative bias (RB) introduced to a study by the nonresponse, Kish (1965) indicates that the RB of any sample mean is a function of the discrepancy between the mean for respondents and the mean for nonrespondents and the proportion of nonrespondents in the total sample. To study this response bias, Oppenheim (1966) suggests two possible strategies: (a) compare respondents with nonrespondents and (b) compare early respondents with late respondents, for in many cases, it has been found that respondents who send in their questionnaires very late are roughly similar to nonrespondents. To allow for these comparisons, returns from each mailing were categorized separately.

Initial steps with regard to questionnaire construction also was taken to maximize the probability of a large response. The cover letter accompanying the instrument (Appendix D) helped to establish rapport by indicating that results were for research purposes only, that S was one of 3500 sampled, and that, if requested, a summary of results would be mailed upon completion of the study.

In addition to the above sampling and data collection procedure, data on 133 first year teachers not included on the original list were collected. As indicated in Table 1, the inclusion of the first year teachers in the sample resulted in a total of 3533 questionnaires originally mailed.

Table 1

Frequency and Percent of Mail Questionnaire Returns by Group

Original Number of Questionnaires		3533
Sample Reduction		
Addresses unknown		202
No longer teaching		47
Non-teacher respondents		371
Estimated non-teacher nonrespondents		121
Adjusted Teacher Sample Total		2799
Return Group	Frequency	Percent
First mailing	973	34.8
Second mailing	549	19.6
Third mailing	328	11.7
Special follow-up (nonrespondents)	56	2.0
First year teachers	133	4.8
Incomplete forms	65	2.3
Totals	2104	75.2
Nonrespondents	695	24.8

Two hundred and two of these 3533 were returned with addresses unknown and 47 indicated that they were no longer teaching. Eliminating these Ss from the original sample resulted in a final sample of 3284 Ss. The frequency and percent of returns per mailing are given in Table 1. Of the total 2475 returned questionnaires, 371 indicated their primary school responsibilities involved duties other than teaching, e.g., principals and superintendents. Assuming that the proportion of nonteachers is the same for nonrespondents as respondents (the authors do not have the data to substantiate this assumption), then one can estimate that approximately 14.99% or 121 of the nonrespondents are nonteachers. Subtracting the number of nonteachers from the total sample size leaves an estimated adjusted sample of 2799 teachers from the target population. Questionnaires were received from 2104 or 75.2% of this sample. Of those questionnaires returned, only 3% were incomplete and therefore unusable for data analysis purposes.

Table 2 presents background data on the 2039 Ss whose scores were used in the data analysis. The descriptive data is presented for elementary-secondary and male-female combinations plus a total for the entire sample. As indicated the total sample consisted of 914 female elementary teachers, 104 male elementary teachers, 505 female secondary teachers, and 516 male secondary teachers.

Results

Mailing Group Analysis

As previously indicated in Table 1, completed returns were not received from 100% of the sampled Ss. To determine possible invalidation of results and conclusions due to response differences in respondents and nonrespondents, comparisons were made among mailing groups on the 14 major variables under investigation. Means and standard deviations on the six subscales of both the Educational Work Components Study (EWCS) and Organizational Incentive Scale (INC), job satisfaction, and primary life interest (PLI) for those responding to the initial mailing, to the first follow-up mailing, to the second follow-up mailing, and the nonrespondent group are given in Table 3. All individuals that completed a questionnaire, including nonteachers, are represented in this table. A visual comparison of the means across groups for each variable indicates a high degree of stability.

To test for statistical significance in the differences between group profiles on the 14 variables, a multivariate analysis of variance (MANOVA) was conducted. The computer program used in the computation required equal sample sizes per group (Dixon, 1969; BMDX69), thus necessitating the selection of a random sample of size 56 from each of the three groups of respondents to make the comparisons. The MANOVA comparing group centroids for the 14 variables resulted in an approximate F statistic of 1.235 which was not significant at the .05 level ($.10 < p < .15$, $df = 42,614$). Based upon this result and the lack of large visual discrepancies between any variable means for the four groups, the conclusion was reached that no significant difference in mean responses existed between groups; therefore, they could be considered as samples from the same population and combined for further analyses.

Table 2

Background Data For Sex by Teaching Level Combinations

Variable	Elementary		Secondary		
	Male (N = 104)	Female (N = 914)	Male (N = 516)	Female (N = 505)	Total (N = 2039)
Mean Age (years)	38.38	40.91	35.32	38.66	38.81
Education (frequency)					
Less than Bachelor's Degree	1 (01)*	19 (02)	1 (00)	4 (00)	25 (01)
Bachelor's Degree	14 (13)	194 (21)	51 (10)	72 (14)	331 (16)
Bachelor's Degree Plus	55 (53)	510 (56)	196 (38)	250 (50)	1011 (50)
Master's Degree	11 (11)	70 (08)	91 (18)	69 (14)	241 (12)
Master's Degree Plus	23 (22)	120 (13)	177 (34)	110 (22)	430 (21)
Doctorate	-	1 (00)	-	-	1 (00)
Marital Status					
Single	11 (11)	138 (15)	56 (11)	95 (19)	300 (15)
Married	89 (86)	691 (76)	454 (88)	376 (74)	1610 (79)
Other	4 (04)	85 (09)	6 (01)	34 (07)	129 (06)
Mean Years Experience as an Educator	11.99	13.68	10.38	11.44	12.20
Mean Years Experience in Present Position	6.98	7.64	6.49	6.68	7.08

*Percent of total per group

Table 3

Means and Standard Deviations for Mailing Groups of Respondents and Nonrespondents on the EWCS Subscales, INC Subscales, Job Satisfaction (JS) and Primary Life Interest (PLI)

Mailing Group		EWCS Subscales 1	2	3	4	5	6	PLI
Initial (N = 1191)	Mean	29.25	27.45	26.35	24.85	18.67	40.80	24.05
	S.D.	2.77	4.71	3.63	3.96	4.77	3.98	4.06
First Follow-Up (N = 616)	Mean	28.88	27.04	26.06	25.35	18.35	40.94	24.12
	S.D.	2.87	4.49	3.45	3.87	4.75	3.87	3.91
Second Follow-Up (N = 373)	Mean	28.94	27.35	26.08	25.29	18.89	40.80	23.92
	S.D.	2.66	4.61	3.73	4.16	4.62	3.70	4.05
Non-respondents (N = 56)	Mean	27.62	26.23	25.91	25.32	18.57	39.62	22.66
	S.D.	3.45	4.35	3.45	3.79	4.27	4.27	4.79

Mailing Group		Incentive Subscales 1	2	3	4	5	6	JS
Initial	Mean	26.13	18.47	28.63	22.84	18.68	33.58	21.25
	S.D.	3.95	3.90	3.48	3.66	4.79	5.43	3.91
First Follow-Up	Mean	26.13	18.80	28.10	23.26	18.38	33.78	21.46
	S.D.	3.91	4.01	3.66	3.39	4.69	5.34	3.97
Second Follow-Up	Mean	26.14	18.99	28.10	23.47	19.79	34.16	21.51
	S.D.	3.81	3.79	3.67	3.35	4.76	5.53	3.83
Non-respondents	Mean	24.89	18.16	27.11	22.55	18.32	30.41	21.04
	S.D.	6.53	4.52	5.52	5.17	5.34	7.31	3.47

Factoral Structure: EWCS and INC

To investigate the similarities or differences between the structure of incentives, as measured by the INC, and factors involved in motivation, as measured by the EWCS, responses to the items in each measure were factor analyzed using an initial principle components analysis with subsequent varimax rotation. Six factors were rotated in the INC to correspond with the number of subscales in the parallel EWCS. Table 4 presents the factor loadings categorized by EWCS subscales for the

Table 4
EWCS and Incentive Item Factor Loadings on the EWCS Subscales

EWCS Item	EWCS Factor Loading	INC Factor Loading	INC Item Number
Factor 1. Potential for Personal Challenge and Development			
49. there would be emphasis on originality.	.64	.69	7
38. I would always have a chance to learn something new.	.63	.61	16
30. the school district would encourage further specialized work.	.59	.42	17
27. there would be emphasis on individual ability.	.59	.69	1
35. I would have a chance to further my formal education.	.58	.36	24
10. there would be opportunity for creative work.	.57	.74	6
20. I would have an opportunity to really accomplish something, even if others wouldn't know about it.	.49	.57	4
Factor 2. Competitiveness Desirablilty (& Reward of Success)			
12. salary increases would be determined by the amount of effort exerted.	.78	.75	32
45. salary increases would be a matter of how much effort you put in.	.75	.80	43
2. salary increases would be strictly a matter of how much I accomplished for the school district.	.72	.75	41
43. there would be emphasis on the actual production record.	.62	**.30(Factor 1)	8
33. competition would be open and encouraged.	.49	.42	30
8. the school district would be involved in heavy professional competition.	.45	.35	46

Table 4 (continued)

EWCS Item	EWCS Factor Loading	INC Factor Loading	INC Item Number
31. there would be opportunities to earn bonuses.	*.43	.46	14
17. persons would be terminated if they do not produce quality work.	.39	**.35 (Factor 5)	13
Factor 3. Tolerance for Work Pressure			
9. the work might be excessive sometimes	.68	.68	15
42. the work might come in big pushes sometimes.	.68	.64	9
18. I might sometimes have to take work home with me.	.65	.43	38
5. school related problems might come up that I would have to take care of myself outside regular hours.	.64	.51	37
44. I might be on call when there is pressure to get jobs done.	.62	.52	18
23. the work might build up "pressures" on me.	.56	.61	33
24. the amount of work would vary.	.52	-	40
15. the schedule of hours might have to be flexible in response to amount of work.	.40	**.31 (Factor 2)	39
Factor 4. Conservative Security			
37. the work would be routine, but highly respected in the community.	.71	.66	22
22. the work would be routine, but the initial salary would be high.	.70	*.52	28
11. the work would be routine, but not hard to do.	.70	.66	21
32. promotions would come automatically.	.64	.29	3
41. the salary increases would be regularly scheduled.	.50	-	45

Table 4 (continued)

EWCS Item	EWCS Factor Loading	INC Factor Loading	INC Item Number
7. I would be involved in managing small groups of people doing routine jobs.	.44	.49	19
29. I would be under a tenure system.	.44	**-.39 (Factor 5)	29
47. there would be emphasis on satisfying superiors by carrying out school policy.	.37	.29	5
Factor 5. Willingness to Seek Rewards in Spite of Uncertainty vs. Avoidance			
36. I could get fired easily, but the rewards would be high.	.76	.71	20
21. I could get fired easily.	.72	.76	2
1. I could get fired easily, but the work would be very interesting.	.66	.78	27
40. the job would be insecure.	.66	.68	48
46. rewards would be high, but if one loses his job it would be very difficult to get another one.	.64	.30	36
28. there would be little permanency of positions.	.63	.61	34
16. the work might run out, but it would be extremely interesting while it lasted.	.58	.37	44
3. I could not be sure I could keep my job as long as I want it.	.56	.67	10
Factor 6. Surround Concern			
26. the ventilation would be modern.	.69	.67	31
19. the physical working conditions would be attractive.	.67	.71	23
13. the climate would be pleasant.	.64	*.42	49
4. the lighting would be good.	.57	.67	12

Table 4 (continued)

EWCS Item	EWCS Factor Loading	INC Factor Loading	INC Item Number
14. the community would be a wonderful place to raise a family.	.56	.48	26
6. the community would have good recreation facilities.	.56	.55	11
25. the fringe benefits would be very good.	.53	**.48 (Factor 2)	42
34. the community would have a good social and cultural life.	*.53	.61	25
48. I would have nice people for co-workers.	*.50	**.41 (Factor 1)	47
39. the supervisors would be nice people.	*.40	**.52 (Factor 1)	35

*Item cross-loaded on another subscale with a loading greater than .30, but less than its loading on the correct subscale.
**Item did not load on the correct subscale, but loaded on the factor indicated in parentheses with the factor loading indicated.

matched EWCS and INC items. A visual comparison of factor loadings across matched items for each subscale indicates that, with only a few exceptions, the structure of incentives as measured by the INC is comparable to the factors involved in motivation as measured by the EWCS. The data in Table 4 give further evidence supporting the factorial validity of both instruments.

Items that cross-loaded with loadings greater than .30 on two factors included item 31 in subscale 2 and items 34, 39, and 48 in subscale 6 of the EWCS and item 28 in subscale 4 and item 49 in subscale 6 of the INC. In all six cases, the largest loadings were on the correct subscales. In addition to the items that cross-loaded, INC item 40 in subscale 3 and INC item 45 in subscale 4 did not load on any factors above .30. As also indicated in Table 4, INC items 8, 13, 39, 29, 42, 47, and 35 all loaded on factors other than the subscale to which their matched EWCS item belonged.

Internal consistency reliability coefficient estimates using coefficient alpha (Cronbach, 1951) were obtained for the EWCS subscales, the measure of job satisfaction and the measure of primary life interest. These coefficients were .78, .79, .77, .72, .82, .82, .70, and .73, respectively.

Independent Subscales: Regression and Discriminant Analyses

In each of the following analyses, the total sample of teachers was divided into subgroups on the basis of sex and teaching level (elementary-secondary). Means and standard deviations for each of the four groups on EWCS and INC subscales, job satisfaction, and primary life interest are given in Table 5. The intercorrelation matrices for each group are presented in Appendix E. To investigate the overall relationship between EWCS subscales, INC subscales, job satisfaction, and primary life interest within subgroups, two different analysis strategies were completed. First, the linear combination of EWCS variables, INC variables, and primary life interest which would maximize prediction of job satisfaction was determined using a multiple regression procedure. While a stepwise regression procedure was actually used in the analysis, Cooley and Lohnes (1971) cautioned researchers of the enormous hazards of capitalization on chance of the stepwise approach to selecting the best set of predictors. Therefore, all 13 variables were entered into the final prediction equation, but primary life interest was the last variable entered in each case to determine if it would add significantly to the prediction of job satisfaction. The second approach used was a discriminant analysis to determine which linear combination of variables would maximize discrimination between a high satisfaction and a low satisfaction group. All Ss were combined and assigned to one of two groups based on the median for the total score distribution. Those having scores above the median were operationally defined as high satisfaction and those below the median as low satisfaction. This procedure assured that groups would be defined the same across sex by teaching level subgroups.

Regression Analyses

Secondary Male Teachers. Table 6 presents a summary of the multiple regression for secondary male teachers in predicting job satisfaction. To facilitate interpretation of the importance of various predictors in the final equation, several indices are given: the standardized regression coefficient (beta weight), the beta weight squared, the correlation of the predictor with the criterion, the product of the beta weight and criterion correlation, and the regression factor structure coefficient. The squared beta weight and beta times the correlation between predictor and criterion are generally used to estimate the approximate proportion of criterion variance accounted for by a predictor (although neither is an exact or independent estimate). However, Cooley and Lohnes (1971) have identified the regression factor structure coefficient (structure R) which places little emphasis on the magnitude of the beta weights and, therefore, can be used as an independent interpretive device in identifying the important contributing variables in the prediction equation. As defined and calculated, the structure R is the correlation between a predictor variable and the predicted criterion score from the regression equation.

The multiple correlation coefficient with all 13 predictor variables entered into the regression equation was .547 which accounted for 29.9% of the job satisfaction variability. When tested, the regression equation was statistically significant with an F value of 16.47 ($p<.05$; $df = 13,502$). Beta weights for seven variables, INC subscales 1, 3, 4, 5, 6, EWCS subscale 3, and PLI, differed significantly from zero. From this group,

Table 5

Means and Standard Deviations for Sex by Teaching Level Combinations on the EWCS Subscales, Incentive Subscales, Job Satisfaction, and Primary Life Interest

Variable	Elementary			
	Male (N = 104)		Female (N = 914)	
	Mean	S.D.	Mean	S.D.
EWCS Subscale				
1 (7 items)	28.78	3.07	29.02	2.89
2 (8 items)	27.30	4.56	26.00	4.44
3 (8 items)	26.06	3.66	25.61	3.48
4 (8 items)	25.52	4.12	25.50	4.07
5 (8 items)	18.46	5.42	18.11	3.65
6 (10 items)	40.55	3.46	40.95	3.91
INC Subscale				
1	25.53	4.45	26.53	3.91
2	18.17	3.45	18.91	3.73
3	27.29	3.65	27.94	3.53
4	23.61	3.20	23.17	3.69
5	18.21	4.90	18.26	4.63
6	32.76	5.38	34.28	5.58
Job Satisfaction	20.90	4.05	21.97	3.76
Primary Life Interest	24.31	4.38	23.88	3.85
Variable	Secondary			
	Male (N = 516)		Female (N = 505)	
EWCS Subscale				
1	28.87	2.69	29.41	2.93
2	28.53	4.43	27.28	4.44
3	26.32	3.34	25.97	3.51
4	24.68	3.69	24.54	3.89
5	18.93	4.45	18.53	4.65
6	40.89	3.88	40.78	4.20
INC Subscale				
1	25.57	3.91	25.83	4.14
2	17.96	4.00	18.29	3.88
3	27.88	3.51	28.59	3.84
4	22.92	3.42	23.22	3.44
5	18.61	4.59	18.61	3.93
6	32.66	5.46	32.91	5.73
Job Satisfaction	20.53	4.00	21.02	4.04
Primary Life Interest	24.15	3.93	23.36	4.33

INC 1, INC 6, and PLI appear to be the major contributors with EWCS 3 and INC 5 having moderate structure R coefficients. It should be noted that while INC 3 has a significant and relatively high beta weight, the low beta * R index and structure R indicate that it is making a significant contribution in combination with the other variables, but independently it is not as important in the prediction of job satisfaction as the other variables mentioned.

Table 6

Multiple Regression Summary for Secondary Males With Job Satisfaction as the Criterion Variable and EWCS Subscales, INC Subscales, and PLI as Predictor Variables

Predictor	Beta	Beta Sq	R (Criterion)	Beta * R	Structure R
PLI	.271*	.073	.319	.086	.583
INC 1	.244*	.060	.395	.097	.722
INC 3	-.158*	.025	-.082	.013	-.150
INC 6	.126*	.016	.349	.044	.638
EWCS 3	.115*	.013	.221	.025	.404
INC 4	-.107*	.011	-.064	.007	-.117
EWCS 1	.089	.008	.156	.014	.285
EWCS 6	-.089	.008	.052	-.005	.095
INC 5	-.084*	.007	-.184	.016	-.337
EWCS 4	.045	.002	-.018	-.001	-.033
INC 2	.025	.001	.102	.003	.187
EWCS 5	.023	.001	.032	.001	.059
EWCS 2	-.006	.000	.062	.000	.113

Multiple R = .547 Multiple R Square = .299

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.87; df = 1,502).

Secondary Female Teachers. The multiple regression summary for secondary female teachers is given in Table 7. The multiple correlation coefficient based on the regression of all 13 predictor variables was .455 (accounting for 20.7% of the variance). The resulting regression equation accounted for a significant proportion of job satisfaction variability (F=9.848; df=13,491) with seven variables having beta weights significantly different from zero: EWCS 3, 5, 6, INC 1, 3, 6, and PLI. Of these variables, INC 1 and 6 have relatively high structure R's while EWCS 3 and PLI have low to moderate structure R coefficients. Again, INC 3 has a high beta weight, but the other indices indicate that it is not contributing independently as much as its beta weight might indicate, but in combination

with the other variables adds significantly to the prediction. EWCS 6 contributes to the prediction, but as a suppressor variable.

Table 7

Multiple Regression Summary for Secondary Females With Job Satisfaction as the Criterion Variable and EWCS Subscales, INC Subscales, and PLI as Predictor Variables

Predictor	Beta	Beta Sq	R (Criterion)	Beta * R	Structure R
Inc 3	-.231*	.053	-.122	.028	-.268
INC 1	.228*	.052	.299	.068	.657
EWCS 3	.179*	.032	.168	.030	.369
PLI	.170*	.029	.151	.026	.332
INC 6	.164*	.027	.270	.044	.594
EWCS 6	-.113*	.013	.004	.000	.009
EWCS 5	-.102*	.010	-.054	.006	-.119
EWCS 1	.094	.009	.090	.008	.198
INC 2	-.053	.003	.046	-.002	.101
EWCS 2	-.030	.001	.026	-.001	.057
INC 4	.019	.000	.020	.000	.044
EWCS 4	-.011	.000	.024	.000	.053
INC 5	.003	.000	-.101	.000	-.222

Multiple R = .455 Multiple R Square = .207

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.87; df = 1,491).

Elementary Female Teachers. As indicated in Table 8, the multiple correlation coefficient for elementary female teachers was .511. The regression was significant (F=24.42; df=13,900) accounting for 26.1% of the variance. INC subscales 1, 3, 4, 6, EWCS subscales 1, 3, 5, 6, and PLI all contributed significantly to the regression with beta weights differing from zero. INC 1 and 6 again appear to be the most important variables in the regression with EWCS 3 and PLI being of secondary importance. INC 3 exhibits the same characteristics as found in the previous two groups.

Elementary Male Teachers. The regression of all 13 predictor variables on job satisfaction for elementary males resulted in a multiple correlation of .501, which was statistically significant at the .05 level of significance (F=2.317; df=13.90). In the resulting final regression equation, only PLI had a beta weight which differed significantly from zero (beta=.293; F=.33; df=1,90).

Table 8

Multiple Regression Summary for Elementary Females With Job Satisfaction as the Criterion Variable and EWCS Subscales, INC Subscale and PLI as Predictor Variables

Predictor	Beta	Beta Sq	R (Criterion)	Beta * R	Structure R
INC 3	-.233*	.054	-.094	.022	-.184
EWCS 3	.224*	.053	.241	.054	.472
INC 6	.207*	.043	.313	.065	.613
INC 1	.196*	.038	.304	.060	.595
PLI	.186*	.034	.222	.041	.435
EWCS 1	.107*	.011	.123	.013	.241
INC 4	-.094*	.009	-.071	.007	-.139
EWCS 6	-.080*	.006	.022	-.002	-.043
EWCS 5	-.078*	.006	-.008	.001	-.016
EWCS 4	.026	.001	.040	.001	.078
INC 2	-.008	.000	.042	.000	.082
INC 5	.006	.000	-.077	.000	.151
EWCS 2	.001	.000	.007	.000	.014

Multiple R = .511 Multiple R Square = .261

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.86; df = 1,900).

Summary. The regression of job satisfaction scores on scores from the EWCS subscales, INC subscales, and PLI was statistically significant for each of the four groups (sex by teaching level). For elementary and secondary females, variables appeared to combine in similar fashion to predict job satisfaction. An individual who scores high on INC 1, INC 6, EWCS 3, and PLI and low on INC 3 will be more satisfied as these were the variables that made larger contributions to the prediction. Similarly, for secondary males, INC 1, INC 6, INC 3, EWCS 3, and PLI were important predictors. In addition, INC 5 also contributed to the prediction. The only significant predictor for elementary males was PLI. While similarities in regression equations exist, the rank order of variables according to the magnitude of their weights differ across groups.

As previously mentioned, the variable PLI was entered last into the regression equation for each group to assess its effect in the prediction of job satisfaction beyond that portion held in common with the INC and EWCS subscales. In each case, its inclusion increased the proportion of job satisfaction variance accounted for by a significant amount. For secondary males, secondary females, elementary females and elementary

males, the increase in R squared was 6.5%, 2.6%, 3.1%, and 5.3%, respectively.

Discriminant Analyses

Means and standard deviations on the EWCS subscales, INC subscales, and PLI for high and low job satisfaction groups used in the discriminant analyses are given in Tables 9 for sex by teaching level subgroups. The procedure outlined previously for assigning Ss to high or low satisfaction groups resulted in 46 high and 58 low satisfaction elementary males, 220 high and 296 low satisfaction secondary males, 517 high and 397 low satisfaction elementary females, and 236 high and 269 low satisfaction secondary females.

The standardized discriminant function weights which maximize differences between high and low satisfaction group means are given in Table 10. Three of the four discriminant functions were statistically significant with the one for elementary males being the exception. The weights for elementary females indicate that EWCS 3 and INC 3 contribute most to the discrimination with INC 3 receiving a negative weight. Of secondary importance are INC 1, INC 6, and PLI. Two other variables, EWCS 5 and INC 4 have low-moderate negative weights.

PLI and INC 1 received the highest weights for the secondary male group. Other variables receiving low-moderate weights were EWCS 1, EWCS 3, EWCS 6, INC 3, and INC 6. For secondary females, INC 1 received the highest weight with EWCS 3, INC 3, and EWCS 5 receiving moderate weights. Low to moderate weights were given to EWCS 1 and INC 6. It should be noted that PLI for secondary females received a weight lower than the magnitude in the previous two groups.

Discrepancy Scores: Regression and Discriminant Analyses

Inspection of the differences between means for the high and low satisfied groups in Table 9 indicates why certain variables received high weights and why their signs were positive or negative. In addition to the differences between high and low satisfaction groups, discrepancies also exist between matched EWCS and INC subscales within each of the satisfaction groups. While the regression analysis and particularly the discriminant analysis take these differences into account in their weighting procedure, they tend to mask these differences, making interpretation difficult. To use a more direct method of assessing on a post hoc basis whether discrepancies in motivation and incentive subscales relate to job satisfaction, scores on each INC subscale were subtracted from scores on the paired EWCS subscale for each S. To avoid negative numbers, a raw score of 50 was added to each discrepancy score. Scores above 50 then indicate that an individual had a higher score on the motivation subscale than the incentive subscale. For scores below 50, the opposite is true. Regression and discriminant analyses were then performed using motivation-incentive discrepancy scores.

Table 9

Means and Standard Deviations for High vs. Low Job Satisfaction by Sex and Teaching Level Subgroups on the EWCS Subscales, INC Subscales, and PLI

Variable	High Job Satisfaction Mean	S.D.	Low Job Satisfaction Mean	S.D.
	N=46	Elementary Males	N=58	
EWCS 1	28.50	2.83	29.00	3.26
INC 1	26.85	3.25	24.48	4.99
EWCS 2	27.41	4.52	27.21	4.63
INC 2	18.78	3.49	17.69	3.37
EWCS 3	26.52	3.48	25.69	3.79
INC 3	27.50	3.29	27.12	3.93
EWCS 4	25.72	3.56	25.36	4.54
INC 4	23.30	3.05	23.84	3.33
EWCS 5	19.37	5.18	17.74	5.55
INC 5	17.59	4.85	18.71	4.93
EWCS 6	40.26	3.59	40.78	3.36
INC 6	34.20	3.75	31.62	6.19
PLI	25.37	3.09	23.47	5.06
	N=220	Secondary Males	N=296	
EWCS 1	29.34	2.86	28.52	2.51
INC 1	26.84	3.73	24.62	3.78
EWCS 2	28.77	4.39	28.35	4.46
INC 2	18.15	4.17	17.82	3.88
EWCS 3	27.03	3.12	25.80	3.41
INC 3	27.64	3.66	28.07	3.39
EWCS 4	24.47	4.06	24.84	3.38
INC 4	22.80	3,58	23.01	3.31
EWCS 5	19.24	4.59	18.70	4.33
INC 5	18.03	4.77	19.03	4.42
EWCS 6	41.02	4.00	40.79	3.79
INC 6	34.19	5.34	31.53	5.28
PLI	25.27	3.78	23.32	3.83

Table 9 (continued)

Variable	High Job Satisfaction Mean	S.D.	Low Job Satisfaction Mean	S.D.
	N=517	Elementary Females	N=397	
EWCS 1	29.18	2.95	28.81	2.82
INC 1	27.25	3.77	25.60	3.91
EWCS 2	26.02	4.64	25.97	4.18
INC 2	19.08	3.67	18.68	3.80
EWCS 3	26.21	3.35	24.82	3.48
INC 3	27.70	3.72	28.25	3.24
EWCS 4	25.63	4.14	25.33	3.97
INC 4	22.95	3.67	23.46	3.69
EWCS 5	18.07	4.79	18.17	4.46
INC 5	18.07	4.83	18.51	4.34
EWCS 6	41.00	4.02	40.89	3.76
INC 6	35.34	5.54	32.89	5.32
PLI	24.64	3.75	23.12	3.85
	N=236	Secondary Females	N=269	
EWCS 1	29.67	3.02	29.19	2.83
INC 1	27.03	3.91	24.78	4.06
EWCS 2	27.28	4.59	27.28	4.32
INC 2	18.53	3.81	18.07	3.94
EWCS 3	26.47	3.66	25.53	3.33
INC 3	28.27	4.13	28.87	3.55
EWCS 4	24.70	4.06	24.41	3.73
INC 4	23.29	3.53	23.15	3.37
EWCS 5	18.08	4.78	18.92	4.50
INC 5	18.03	4.90	19.11	4.90
EWCS 6	40.99	4.43	40.60	3.99
INC 6	34.18	5.70	31.80	5.53
PLI	23.63	4.45	23.12	4.21

Table 10

Standardized Discriminant Function Weights for EWCS Subscales, INC Subscales, and PLI For Each Teaching Level by Sex Group

Variable	Elementary		Secondary	
	Male	Female	Male	Female
EWCS Subscale				
1	-.317	.096	.308	.219
2	-.309	.029	-.098	-.124
3	.217	.556	.240	.464
4	-.063	.045	-.002	.011
5	.374	-.214	.124	-.363
6	.023	-.104	-.221	-.150
INC Subscale				
1	.336	.362	.457	.610
2	.409	.074	-.076	-.021
3	.035	-.511	-.329	-.451
4	-.312	-.261	-.095	.010
5	-.636	.014	-.068	-.068
6	.030	.385	.235	.256
PLI	.527	.406	.566	.189
F Value	1.59	12.06	7.80	5.62
$F_{.95}$	1.87 (df = 13,90)	1.76 (df = 13,900)	1.77 (df = 13,502)	1.77 (df = 13,491)

Regression Analyses

Means and standard deviations for EWCS-INC subscale discrepancy scores for each sex by teaching level group are given in Table 11. As indicated, large mean discrepancies exist for subscales 2 and 6 with responses to the motivation subscale being higher than those to the incentive subscale. The reverse is true for subscale 3 where work pressure is occurring in the school system in excess of that ideally desired. The intercorrelation matrices for each group are presented in Appendix F.

Table 11

Means and Standard Deviations for Sex by Teaching Level Combinations on EWCS - INC Subscale Discrepancy Scores

Group		EWCS - INC Subscale 1	2	3	4	5	6
Elementary Males	Mean	53.25*	59.13	48.77	51.91	50.25	57.79
	S.D.	5.56	5.86	4.65	4.50	6.51	6.05
Elementary Females	Mean	52.49	57.09	47.66	52.32	49.85	56.67
	S.D.	4.32	5.78	4.31	4.43	5.69	6.48
Secondary Males	Mean	53.30	60.56	48.44	51.76	50.33	58.22
	S.D.	4.23	6.38	4.37	4.23	5.96	6.46
Secondary Females	Mean	53.58	58.99	47.38	51.32	49.92	57.87
	S.D.	4.78	6.02	4.36	4.00	6.14	7.06

*Mean scores above 50 indicate a higher mean on the motivation subscale while for mean scores below 50 the opposite is true.

Tables 12, 13, and 14 present summaries of the multiple regression analysis for secondary males, secondary females, and elementary females, respectively. Each of these regression equations accounted for a significant proportion of job satisfaction variance as did the regression equation for elementary males. Again, although the regression of job satisfaction on the other seven variables for elementary males was significant, it resulted in only PLI receiving a significant beta weight.

For the other three groups the variables with significant beta weights were very consistent with subscales 1, 3, 6, and PLI contributing significantly. For secondary males, the beta weight for subscale 4 also was significantly different from zero, but the other interpretive indices indicate that its importance is not as great as the other four variables. In general, the relationships indicate that individuals with lower discrepancy scores on subscales 1 and 6, but a higher discrepancy score on subscale 3 and a high score on the PLI (more job oriented) will be more satisfied. The large discrepancy between EWCS and INC means for subscale 2, indicated in Table 11, for all groups evidently is not related to job satisfaction beyond that already predicted by the other variables.

Table 12

Multiple Regression Summary For Secondary Males With Job Satisfaction as the Criterion Variable and EWCS-INC Subscale Discrepancy Scores and PLI as Predictor Variables

Variable	Beta	Beta Sq.	R (Criterion)	Beta * R	Structure R
EWCS-INC Subscale					
1	-.169*	.028	-.266	.045	-.540
2	.035	.001	-.021	-.001	-.043
3	.175*	.031	.235	.041	.477
4	.080*	.006	.036	.003	.073
5	.082	.007	.165	.014	.335
6	-.162*	.026	-.264	.043	-.536
PLI	.309*	.095	.319	.099	.648

Multiple R = .492 Multiple R Square = .242

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.86; df = 1,508).

Table 13

Multiple Regression Summary for Secondary Females
With Job Satisfaction as the Criterion Variable
and EWCS-INC Subscale Discrepancy Scores and
PLI as Predictor Variables

Variable	Beta	Beta Sq.	R (Criterion)	Beta * R	Structure R
EWCS-INC Subscale					
1	-.166*	.027	-.204	.034	-.519
2	.054	.003	-.011	.001	.028
3	.253*	.064	.243	.061	.618
4	-.010	.000	.006	.000	.015
5	-.041	.002	.040	-.002	.102
6	-.163*	.027	-.217	.035	-.552
PLI	.174*	.030	.151	.026	.384

Multiple R = .393 Multiple R Square = .155

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.87; df = 1,497).

Table 14

Multiple Regression Summary For Elementary Females With Job Satisfaction as the Criterion Variable and EWCS-INC Subscale Discrepancy Scores and PLI as Predictor Variables

Variable	Beta	Beta Sq.	R (Criterion)	Beta * R	Structure R
EWCS-INC Subscale					
1	-.121*	.014	-.193	.023	-.441
2	.060	.004	-.022	-.001	-.050
3	.253*	.064	.272	.069	.622
4	.050	.002	.096	.005	.219
5	-.022	.000	.056	-.001	.128
6	-.189*	.036	-.257	.049	-.588
PLI	.219*	.048	.222	.049	.508

Multiple R = .437 Multiple R Square = .191

*These beta weights differ significantly from zero at the .05 level of significance ($F_{.95}$ = 3.86; df = 1,906).

Discriminant Analysis

Table 15 presents the means and standard deviations for groups under each satisfaction, sex, and teaching level combination for EWCS-INC subscale discrepancy scores. The mean discrepancy profiles are presented pictorially in Figures 1, 2, 3, and 4. The standardized discriminant function weights maximizing the discrimination of the two satisfaction groups are given in Table 16.

Table 15

Means and Standard Deviations for Groups Under Each High - Low Job Satisfaction, Sex, and Teaching Level Combinations for EWCS - INC Subscale Discrepancy Scores

Sex by Teaching Level Group	Satisfaction Group	EWCS - INC Subscale 1		2		3	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary Males	High	51.65	3.43	58.63	5.72	49.02	3.32
	Low	54.52	6.55	59.52	5.98	48.57	5.50
Elementary Females	High	51.93	3.76	56.94	5.60	48.51	4.03
	Low	53.21	4.87	57.29	6.01	46.56	4.40
Secondary Males	High	52.51	3.	60.61	6.27	49.39	4.05
	Low	53.90	4.43	60.52	6.46	47.73	4.47
Secondary Females	High	52.64	4.38	58.74	6.05	48.20	4.39
	Low	54.41	4.97	59.21	6.00	46.66	4.21

Sex by Teaching Level Group	Satisfaction Group	EWCS - INC Subscale 4		5		6	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Elementary Males	High	52.41	3.31	51.78	5.49	56.07	5.14
	Low	51.52	5.26	49.03	7.03	59.16	6.40
Elementary Females	High	52.68	4.29	50.00	5.64	55.66	6.50
	Low	51.86	4.56	49.67	5.76	58.00	6.21
Secondary Males	High	51.67	4.47	51.21	6.09	56.84	5.89
	Low	51.83	4.04	49.67	5.79	59.26	6.68
Secondary Females	High	51.41	3.88	50.05	6.11	56.81	6.84
	Low	51.24	4.11	49.80	6.18	58.80	7.12

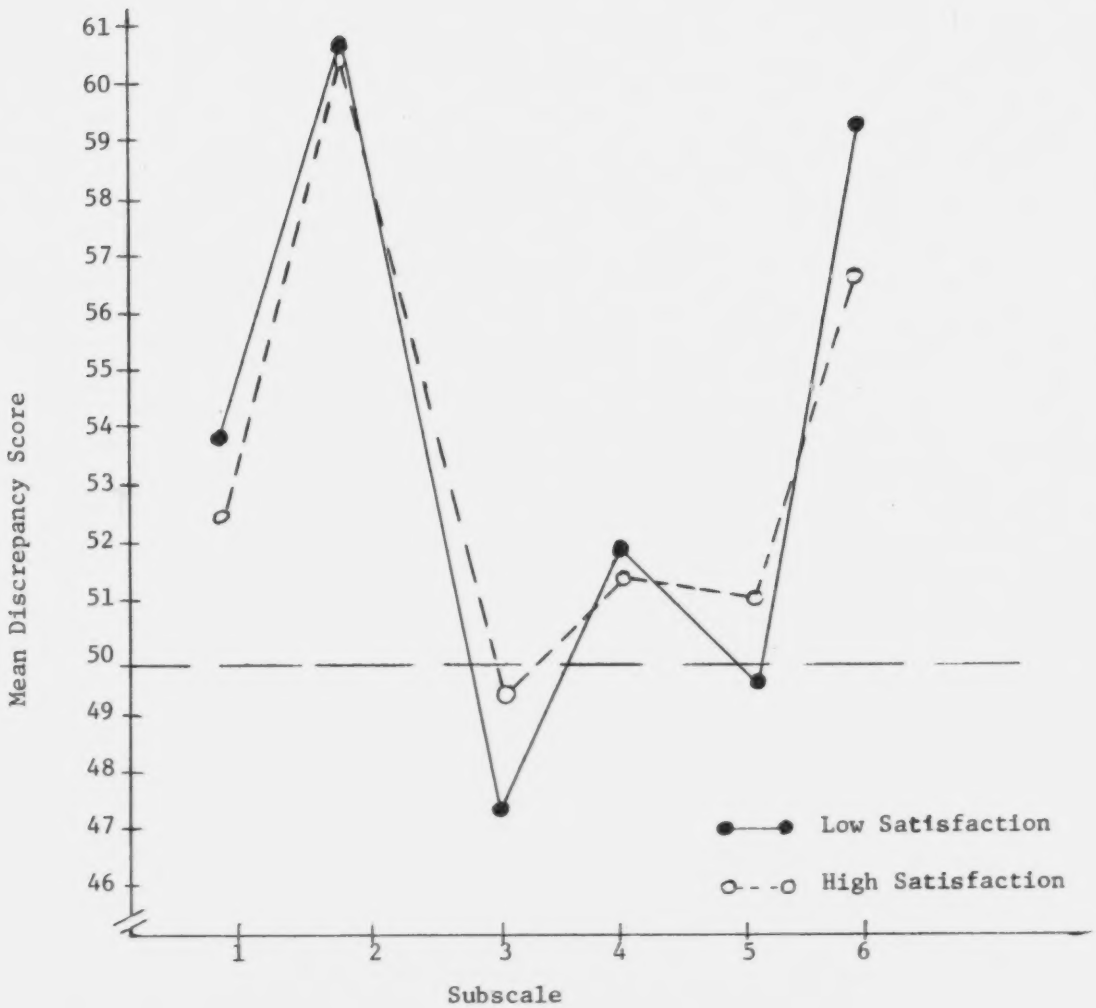

Fig. 1 Mean Discrepancy Subscale Score Profiles
For High and Low Satisfaction
Secondary Males

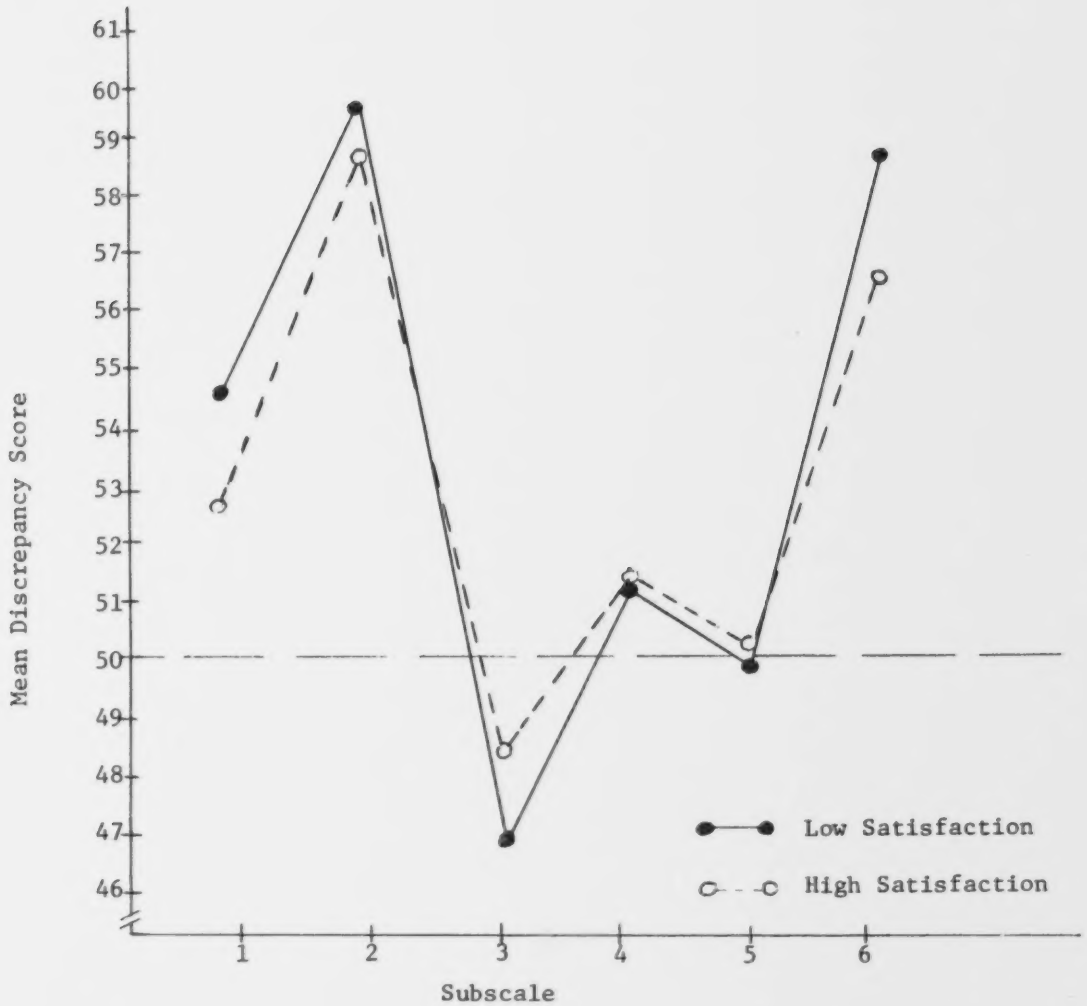

Fig. 2 Mean Discrepancy Subscale Score Profiles For High and Low Satisfactory Secondary Females

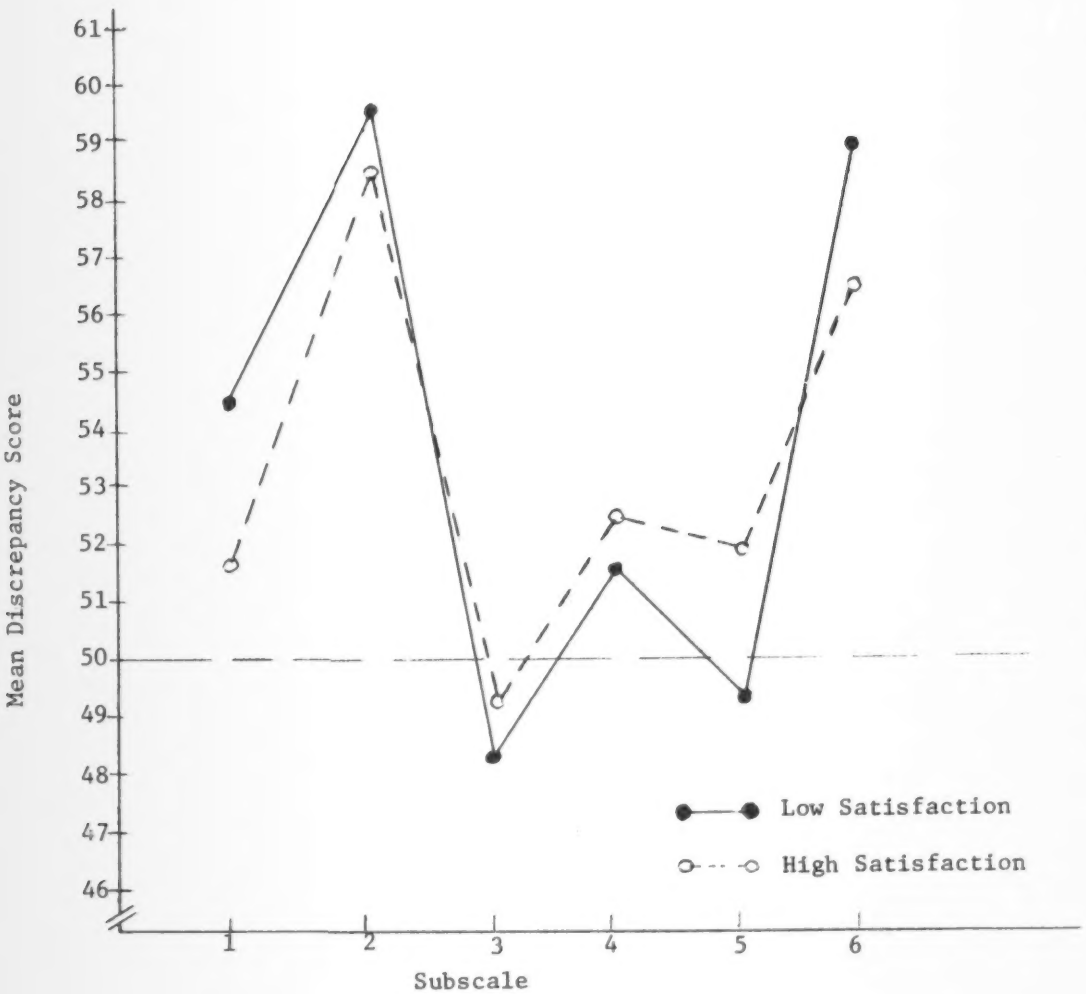

Fig. 3 Mean Discrepancy Subscale Score Profiles For High and Low Satisfaction Elementary Males

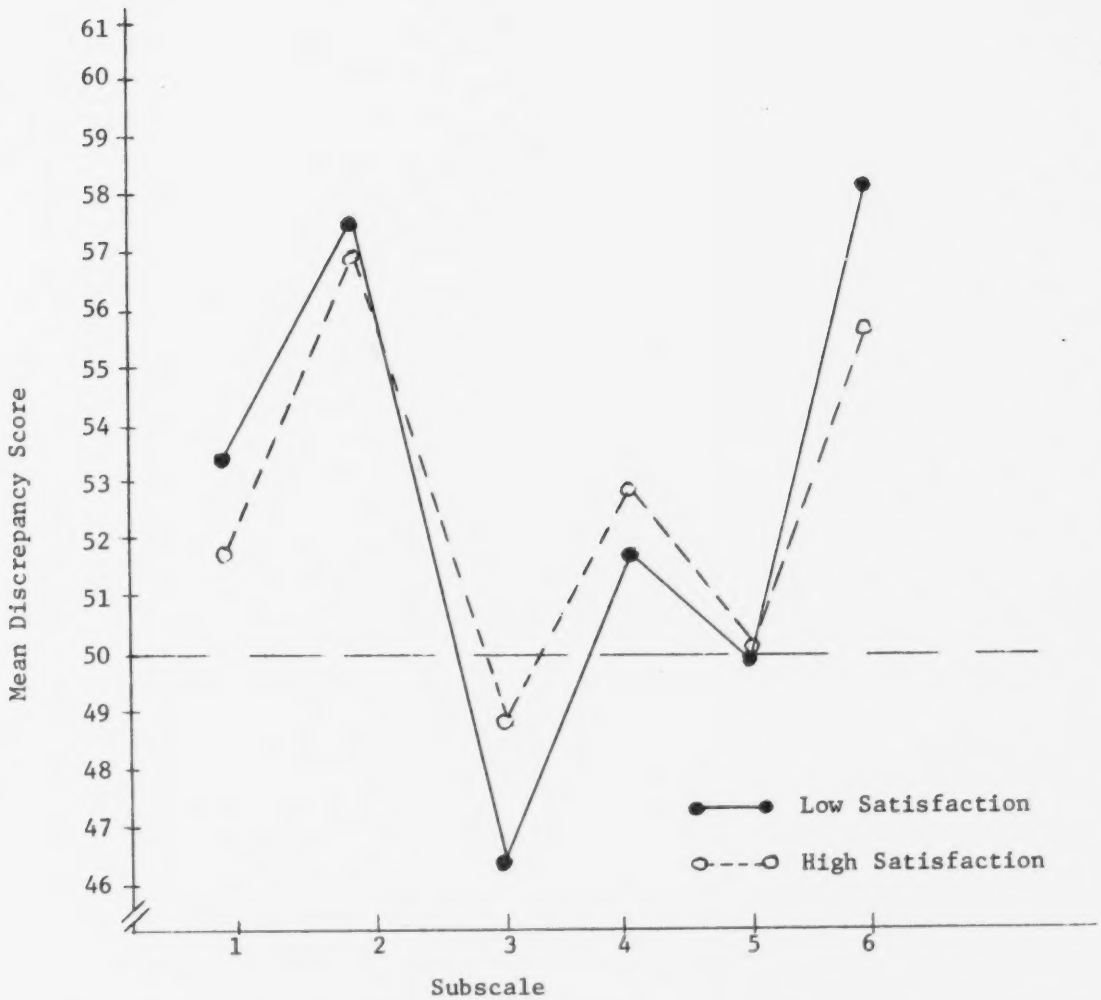

Fig. 4 Mean Discrepancy Subscale Score Profiles For High and Low Satisfaction Elementary Females

Table 16

Standardized Discriminant Function Weights for EWCS - INC Subscale Discrepancy Scores and PLI for Each Teaching Level by Sex Group

Variable	Elementary		Secondary	
	Male	Female	Male	Female
EWCS - INC Subscale				
1	-.465	-.303	-.263	-.637
2	-.468	.095	.105	.071
3	.151	.653	.424	.686
4	.097	.152	.034	.013
5	.689	-.083	.160	-.129
6	.001	-.371	-.351	-.247
PLI	.547	.519	.693	.291
F Value	2.73	17.05	10.85	5.96
$F_{.95}$	2.12 (df = 7,96)	2.03 (df = 7,906)	2.04 (df = 7,508)	2.04 (df = 7,497)

As indicated, the discriminant functions were significant for all groups. Contrasting the weights across sex by teaching level groups indicates some discrepancies in the variables that are important in the discrimination, especially for elementary males in contrast to the other three groups. The most evident differences occur in the weights for subscales 2 and 5 which have not been a factor and are not a factor in this analysis for the other groups. From Table 15 elementary males who are defined as satisfied have lower positive discrepancy scores on subscales 1 and 2, a positive discrepancy score on subscale 5, and are higher on the PLI while low satisfaction elementary males have higher discrepancy score on subscale 1 and 2, a negative discrepancy score on subscale 5, and are lower on the PLI.

For the other three groups, the weights on subscales 2, 4, and 5 are low with subscales 1, 3, 6, and PLI being weighted higher, but with varying degrees of magnitude within subgroups. Subscale 3 receives a relatively high positive weight for all groups and subscale 6 a moderate negative weight. Subscale 1 appears to help discriminate (high weight) for secondary females with PLI receiving a low-moderate weight. In contrast the opposite is true for elementary females and secondary males.

While there exists no available techniques for comparing discriminant functions across groups, further insights into similarities and/or

differences among the discrepancy variables across groups can be gained through MANOVA techniques. This technique does not weight variables as does the discriminant analysis, but will indicate if significant main or interaction effects are present for differences in the variables. On a post hoc basis, a 2x2x2 factorial multivariate analysis of variance design was used to compare profiles across sex by teaching level by satisfaction level groups for those variables that appear to contribute to the discrimination, i.e., subscales 1, 3, 5, 6, and PLI. A significant three-way interaction would lend support to the hypothesis that these variables are discriminating and differ in their contributions across groups. Again, the computer program used (Dixon, 1969; BMDX69) required equal sample size necessitating the reduction of group size by random elimination of Ss within subgroups until each group contained 46 Ss which was the size of the smallest group (high satisfaction elementary males). Multivariate F statistics between group centroids consisting of mean discrepancy scores from subscales 1, 3, 5, and 6, and PLI for main and interaction effects are given in Table 17.

Table 17

Multivariate and Univariate Analysis of Variance F Ratios For Teaching Level, Sex, and Satisfaction Level Effects

Source		Multivariate F Value	Univariate F Values for Subscales 1	3	5	6	PLI
Teaching Level	(A)	2.57**	3.48	3.63	.02	3.29	1.84
Sex	(B)	.91	.03	.94	.07	1.15	1.24
Satisfaction Level	(C)	8.36**	15.89*	9.60*	.80	6.87*	9.64*
AB		.40	1.96	.01	.06	.64	.02
AC		.74	.08	.13	.05	.01	3.22
BC		1.47	.34	2.07	2.38	1.29	.76
ABC		2.17	1.83	1.45	4.19*	.12	2.26

*Significant at the .05 level (df = 1,360)
**Significant at the .05 level (df = 5,356)

As indicated, the multivariate main effect for differences in levels of satisfaction was significant. The interaction effect between satisfaction, sex, and teaching level resulted in an approximate F statistic of 2.17 ($.10<p<.05$; df = 5, 356). To investigate which variable, if any, might be independently causing the interaction effect, each variable was covaried separately from the remaining four after which a MANOVA was performed. This procedure of identifying important variables operating in a particular MANOVA effect follows that outlined by Bock (1966). Removing variables 3, 5, 6, and PLI independently did not lower the obtained F value, but removal of the effects of subscale 5 from the other four subscales did (F = 1.65; df = 4,356). The results of the MANOVA and covariance analyses indicate that subscale 5 contributes more to the interaction effect than the other four subscales.

Looking at each subscale separately, univariate analysis of variances were performed. The obtained F ratios also are given in Table 17. Because these univariate tests are not independent, interpretations should be made in light of the results of the multivariate analyses. Supporting the results of the discriminant analyses and the MANOVA, the main effect between satisfaction levels was significant for subscales 1, 3, 6, and PLI while subscale 5 resulted in a significant interaction between sex, teaching level, and level of satisfaction. These results support the conclusion that subscales 1, 3, 6, and PLI discriminate between high and low satisfaction groups with no differential effect for sex or teaching level combinations.

The graph for the significant interaction for subscale 5 is given in Figure 5. There appears to be little discrepancy between motivation and incentive for either low or high satisfaction elementary or secondary females. Contrarily for males, incentives for subscale 5 exist in excess of what is important for the low satisfaction groups while the opposite is true for satisfied males. The differences in the extremes is greater for elementary males than for secondary males.

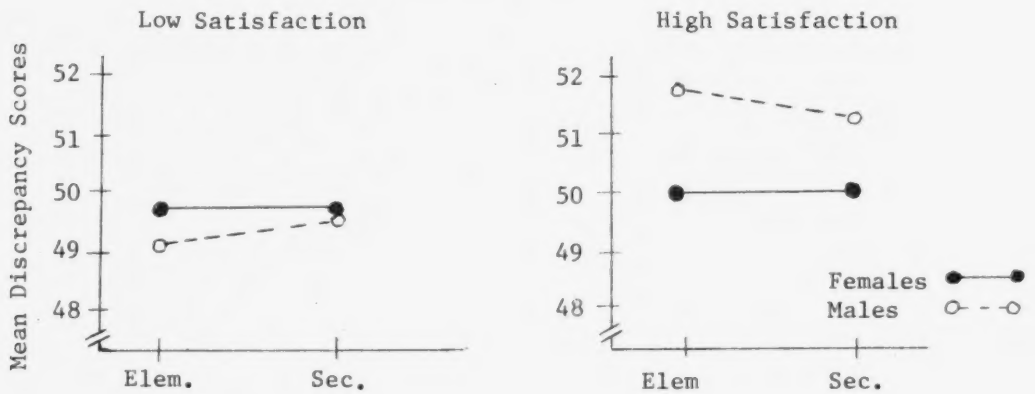

Fig. 5 Interaction Between Satisfaction Levels, Sex, and Teaching Levels for Subscale 5 Discrepancy Scores

Post Hoc Comparisons: Analysis of Variance

In an attempt to further delineate the relationships expressed in the regression and discriminant analyses, the variables consistently identified as significantly relating to job satisfaction were dichotomized and used as independent variables in a 2x2x2x2x2 factorial analysis of variance design. These variables were EWCS 3 and 6, INC 3 and 6, and PLI. Based upon scores from the total sample, the median for each variable was identified. Individuals above the median were defined as "high" on that variable while those below the median were the "low" group. For each of the 32 different combinations, Ss having characteristics defined by a unique combination were identified and assigned to that particular cell

of the design, e.g., one group would consist of all individuals who had scores above the median for all five variables. To provide for equal sample sizes per cell, the smallest group was determined (N = 32) and Ss were eliminated at random in all other groups until 32 Ss remained. Mean and standard deviations for these 32 groups are presented in Table 18.

Table 18

Job Satisfaction Means and Standard Deviations for High and Low Groups on EWCS 3, EWCS 6, INC 3, INC 6, and PLI Combinations

INC 3 Group	INC 6 Group	PLI Group	EWCS 3 - Lo		EWCS 3 - Hi	
			EWCS 6 Lo	EWCS 6 Hi	EWCS 6 Lo	EWCS 6
Lo	Lo	Lo	19.09*	19.53	21.63	20.19
			3.42	3.84	3.59	3.67
		Hi	21.22	21.28	23.12	23.34
			4.03	3.38	3.11	3.96
	Hi	Lo	22.94	23.00	21.12	22.91
			2.96	3.50	3.38	3.54
		Hi	22.84	23.59	23.44	24.56
			3.73	3.14	4.07	3.65
Hi	Lo	Lo	17.13	18.56	19.94	20.50
			3.84	4.03	3.83	3.52
		Hi	19.25	21.56	21.53	22.44
			3.89	3.01	3.68	2.95
	Hi	Lo	20.81	20.94	22.47	23.13
			3.51	3.67	3.51	3.13
		Hi	21.19	20.88	22.88	23.81
			3.30	4.05	4.01	3.81

*Mean Job Satisfaction
**Standard Deviation

The analysis of variance summary is given in Table 19. As indicated, all main effects plus first order interactions between EWCS 3 and INC 3 and INC 6 and PLI and second order interactions between EWCS 3, EWCS 6, and INC 6, EWCS 3, INC 3, and INC 6, and EWCS 6, INC 3, and INC 6 were significant at the .05 level. While the zero and first order interactions are interesting, their interpretation is confounded due to the significant

second order interactions with the exception of the interaction between INC 6 and PLI.

Table 19

Summary Table For a 2x2x2x2x2 Factorial Analysis of Variance on High and Low EWCS 3, EWCS 6, INC 3, INC 6, and PLI Groups

Source	df	MS	F	Omega Squared (ω^2)
EWCS 3 (Lo vs. Hi) (A)	1	537.66	41.48*	.033
EWCS 6 (Lo vs. Hi) (B)	1	92.64	7.15*	.005
INC 3 (Lo vs. Hi) (C)	1	282.66	21.81*	.017
INC 6 (Lo vs. Hi) (D)	1	911.29	70.32*	.057
PLI (Lo vs. Hi) (E)	1	531.88	41.04*	.033
AB	1	.02	n.s	-
AC	1	91.44	7.06*	.005
BC	1	13.14	n.s.	-
AD	1	48.13	n.s.	-
BD	1	.39	n.s.	-
CD	1	.04	n.s.	-
AE	1	11.82	n.s.	-
BE	1	5.64	n.s.	-
CE	1	8.63	n.s.	-
DE	1	127.97	9.87*	.007
ABC	1	.77	n.s.	-
ABD	1	62.02	4.79*	.003
ACD	1	65.00	5.01*	.003
BCD	1	68.08	5.25*	.003
ABE	1	.77	n.s.	-
ACE	1	25.63	n.s.	-
BCE	1	.07	n.s.	-
ADE	1	25.63	n.s.	-
BDE	1	6.89	n.s.	-
CDE	1	10.16	n.s.	-
ABCD	1	.06	n.s.	-
ABCE	1	.25	n.s.	-
ABDE	1	4.52	n.s.	-
ACDE	1	.10	n.s.	-
BCDE	1	.02	n.s.	-
ABCDE	1	21.39	n.s.	-
SWG	992	12.96		

*Significant at the .05 level ($F_{.95} = 3.85$)

Figures 6, 7, and 8 depict the relationship between the cell means for the second order interactions. The graphed means do not represent the true interaction effect as lower order interactions have not been

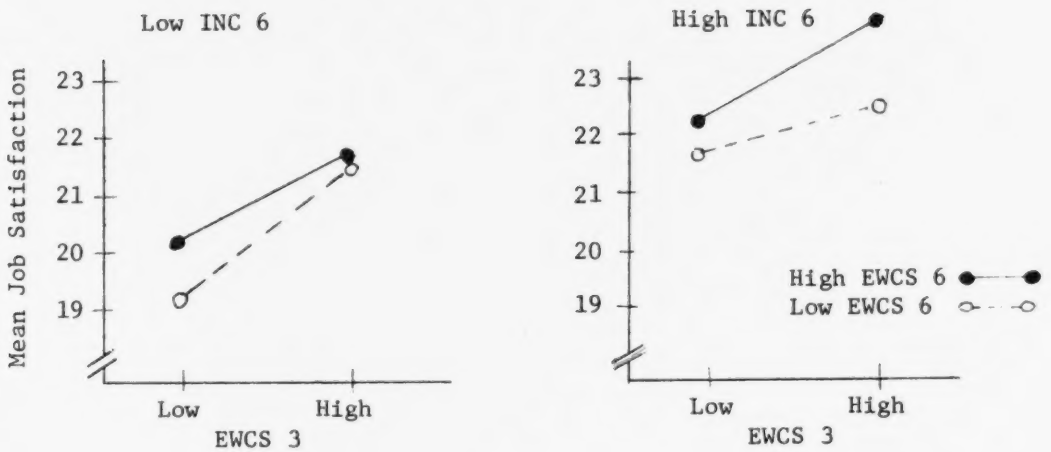

Fig. 6 Interaction Between High and Low Groups on EWCS 3, EWCS 6, and INC 6.

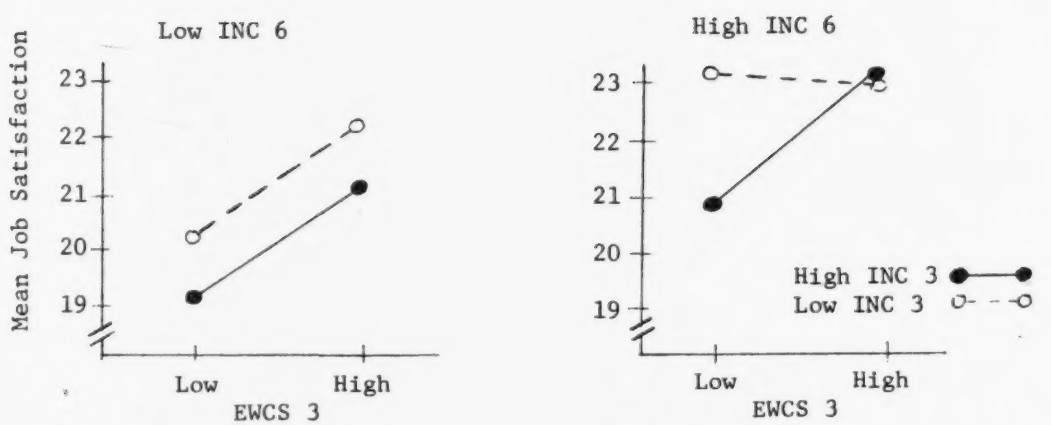

Fig. 7 Interaction Between High and Low Groups on EWCS 3, INC 3, and INC 6.

eliminated from them, but they can be used as crude interpretive devices. For the interaction between EWCS 3, EWCS 6, and INC 6 displayed in Figure 6, the difference in job satisfaction between low and high EWCS 3 groups when EWCS 6 and INC 6 is low is greater than when EWCS 6 is high and INC 6 is low. When INC 6 is high, the opposite appears to be true; the difference in job satisfaction between low and high EWCS 3 groups is greater when EWCS 6 is high than it is when EWCS is low. One might infer from this graph that a person is more satisfied if he is high on tolerance for work pressure, is high on concern for his surroundings, and the school system is such that the incentives are high where surroundings are concerned. In contrast when the surroundings as incentives are low (low INC 6), a high tolerance for work pressure appears to be related to higher job satisfaction whether one is high or low on EWCS 6. It should be noted that mean job satisfaction is higher for all groups when INC 6 is high as opposed to when it is low.

The interaction between EWCS 3, INC 3, and INC 6 is shown in Figure 7. When INC 6 is low, the difference in mean job satisfaction between low and high EWCS 3 groups is approximately the same for individuals who are low or high on INC 3, but when INC 3 is low (not as much job work pressure), satisfaction is higher with the highest mean satisfaction occurring for the high EWCS 3 - Low INC 3 and the lowest mean satisfaction occurring when one is low on EWCS 3 and high on INC 3, i.e., one is low on tolerance for work pressure, but pressure exists in the job.

When INC 6 is high, greater job satisfaction exists than when INC 6 is low for all EWCS 3 - INC 3 groups with the exception of one, the low EWCS 3 - high INC 3 group. High incentives relating to job surroundings appear to be the overriding factor except when high work pressure exists in the job and individuals have low tolerance for work pressure.

Figure 8 displays the interaction between EWCS 6, INC 3, and INC 6. Contrary to what one might predict, when EWCS 6 is high, INC 6 is low, and INC 3 is high, mean satisfaction is not at its lowest point. As is true in the preceding two figures, mean satisfaction is higher for EWCS 6 and INC 3 combinations when INC 6 is high. The highest mean job satisfaction occurs when EWCS 6 is high, INC 3 is low and INC 6 is high.

Two significant first order interactions existed, but the EWCS 3 and INC 3 interaction was dependent upon which level of INC 6 one looked at. The other first order interaction was between INC 6 and PLI. Figure 9 displays the relationship between the four cell means involved in this interaction. Job satisfaction appears to be higher if INC 6 is high or if one is high on the PLI despite being low on INC 6.

Table 19 also indicates an estimate of the amount of job satisfaction variance accounted for by each of the significant effects. The index used (omega squared, ω^2) and its computation is outlined by Halderson and Glasnapp (1972). The general pattern of variable importance remains consistent with previous analyses in this report. The main effect for INC 6 accounts for the greatest percentage of job satisfaction variance (5.7%), while the main effects for EWCS 3, PLI, INC 3, and EWCS 6 follow in descending rank order. In addition, INC 6 is

involved in the four independent significant interactions which account for minimal job satisfaction variance although they are statistically significant.

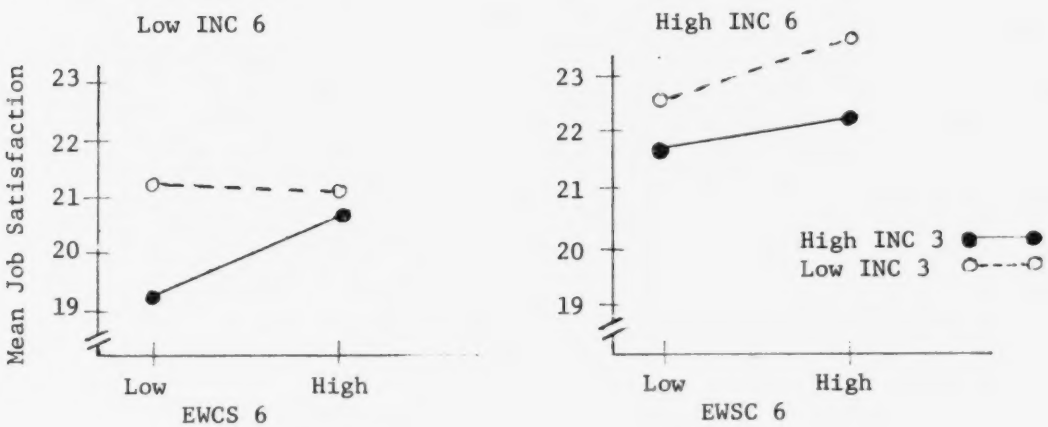

Fig. 8 Interaction Between High and Low Groups on EWCS 6, INC 3, and INC 6.

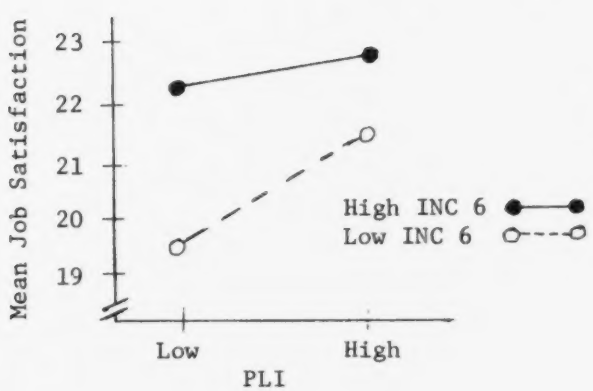

Fig. 9 Interaction Between High and Low Groups on INC 6 and PLI.

Summary and Conclusions

Research Objective One

The first objective of the present project was to evaluate the research instruments which were either constructed or modified to study (a) motivation, (b) incentives, (c) job satisfaction, and (d) primary life interests of public school teachers. While this was not the primary goal of the investigation, its realization was essential to fulfillment of the other three research objectives. As evidenced in Appendix D, a single instrument was used to obtain data relative to the four variables noted above. However, for discussion and evaluative purposes, the instrument may be viewed as four separate measures.

The measure of work motivation was an adaptation of the Work Components Study (WCS) developed by Borgatta, Ford, and Bohrnstedt (1968) and of the Educational Work Components Study (EWCS) developed from the WCS by Miskel and Heller (1972). Analysis of pilot study data resulted in a revised EWCS consisting of 49 five point Likert-scaled items within six subscales derived through factor analysis. Cross-validation indicating response pattern stability and subscale alpha reliability coefficients ranging from .74 to .83 provide a basis for confidence in the motivation instrumentation.

To measure incentives in educational organizations, the EWCS items were rewritten to elicit from respondents information about the actual availability within the system of things which might be perceived as being important to the individual teacher. In other words, the EWCS focused on "ideal" incentives or motivational factors and the incentive scale (INC) focused on "real" incentives or conditions. Once again, 49 five point Likert-scaled items within six subscales were presented. Item response variability for the INC was observed to be adequate. When taken in combination, the EWCS and the INC were of greater utility than either independently. This conclusion is based on the finding that when INC items are matched with those of the revised EWCS, an indication is provided of the discrepancy between work motivation and school incentives as they relate to job satisfaction.

Job satisfaction was measured with a series of six Likert-scaled items. These six items were retained from an original series of eleven in the pilot study on the basis of factor loadings and subscale reliability estimates. These items proved to be adequate for this study with an internal consistency reliability estimate of .70. The foregoing measured satisfaction as a global attitude. However, as noted by Smith et al. (1969) satisfaction can also be conceptualized as multidimensional. Consequently, the present measure of job satisfaction should be used only in conjunction with a global definition.

Seven items were developed from the pilot study as measures of primary life interests (PLI). Although the items have high face validity and an internal consistency reliability estimate of .73, a limitation should be noted. The instrumentation provided only a basis for determining the level of teacher respondents job-related primary life interest and not if their primary life interest resided in some facet of life outside

the occupational domain. If concepts of partial inclusion and role identification are to be elaborated and applied to job satisfaction and organizational effectiveness research, further instrument development will be required in order to determine the dimensions of PLI attachment.

Within the pilot study phase of the investigation, an attempt was made to develop a measure of voluntarism relative to teachers' perceived options available as to working or not working and as to the type of work preferred if gainful employment was necessary. The five items incorporated in the pilot study were dropped from final instrumentation due to obtained item factor loadings and subscale reliability estimates (Appendixes A and C). The lack of a voluntarism scale did not present undue constraints to this investigation. However, voluntarism is viewed as a potentially useful concept for additional job satisfaction research.

Overall, the instrumentation scales reflecting measures of motivation, incentives, primary life interests, and job satisfaction are evaluated as being high in utility for meeting the stated research objectives and as adequately meeting subscale factorial stability and reliability requirements. The revised EWCS and the INC scales demonstrated considerable strengths in providing measures of motivational and incentive factors and as a basis for determining discrepancies in perceived ideal and real organizational incentives for teachers. Measures of primary life interests and job satisfaction were adequate for this investigation but have limitations as noted above. Use of these instrument items in future research would depend upon how well the research objectives can be met within the confines of the limitations.

Research Objectives Two and Three

Objective two of the present investigation was to develop basic research conclusions regarding the interrelationships among components of work motivation, incentives, satisfaction, and primary life interest. Once these relationships had been investigated, the applicability to the educational organization of existing theories was to be evaluated as objective three. To meet the second objective two basic analysis procedures, regression and discriminant analysis, were used to investigate, more specifically, the interdependent relationships between and among motivation, incentives, and primary life interest as they relate to job satisfaction. The components of motivation and incentives (subscales were matched across instruments) consisted of the following subscales:

(a) Potential for personal challenge and development (EWCS and INC 1).
(b) Competitive desirability and reward of success (EWCS and INC 2).
(c) Tolerance for work pressure (EWCS and INC 3).
(d) Conservative security (EWCS and INC 4).
(e) Willingness to seek reward in spite of uncertainty vs. avoidance of uncertainty (EWCS and INC 5).
(f) Surround concern (EWCS and INC 6).

Each of the two data analysis procedures were performed using the 12 subscales (six EWCS and six INC) plus the primary life interest scale (PLI) as independent variables and also using EWCS and INC subscale discrepancy scores and PLI as independent variables. In addition, analyses were

performed for each sex (males and females) by teaching level (elementary and secondary) group.

Table 20 summarizes the results of the regression analysis findings for the four groups when the independent EWCS and INC subscales were used as predictors. As indicated, five variables consistently contributed to the prediction and discrimination using job satisfaction as the criterion variable for three of the four groups, secondary males and females and elementary females. These variables were PLI, INC 1, INC 3,

Table 20

Summary of the Significant Predictor Variables in Regression Analyses for Sex by Teaching Level Combinations

	Elementary		Secondary	
Variable	Males	Females	Males	Females
EWCS Subscale				
1		*		
2				
3		**	**	**
4				
5		*		*
6		*		*
INC Subscale				
1		**	**	**
2				
3		**	**	**
4		*	*	
5			*	
6		**	**	**
PLI	**	**	**	**

*The beta weights for these variables differed significantly from zero, but interpretative indices indicated that their contribution to the regression was low.

**Interpretative indices indicated that these variables were greater contributors to the regression.

INC 6, and EWCS 3. In general, the weights assigned to these variables by the regression and discriminant analysis would indicate that the individuals in these three groups who scored higher on the job satisfaction scale also were more job oriented (PLI), had a job in which a higher potential for personal challenge and development existed (INC 1), where less work pressure existed in the job (INC 3), where more incentives relating to physical surroundings existed (INC 6), and the tolerance for work pressure was higher (EWCS 3). While the weights for each of the above variables were relatively high and statistically significant,

the rank order of weights in terms of magnitude across groups differed indicating that some of the five variables were more important than the others for a particular group. Because no available statistical test existed, the difference in discriminant function weights across groups given in Table 10 was not tested, but it appears that the tolerance for work pressure (EWCS 3) and the existence of work pressure in the job (INC 3) were more important variables in discriminating between high and low satisfaction groups for the two female groups than for the secondary males.

Other variables also contributed significantly in the linear composites for each group, but the magnitude of the weights were relatively lower than the five variables previously mentioned. With the exception of EWCS 3 and INC 3, there existed no pattern of relation between matched EWCS and INC subscales in the prediction of job satisfaction, i.e., INC 1 and INC 6 had relatively high weights while EWCS 1 and EWCS 6 did not in general. This would indicate that the existence or nonexistence of present incentives relating to personal challenge and development and physical surroundings is more important in the prediction of job satisfaction than the influence of either of the two EWCS factors. If the EWCS subscales are construed to be ideal incentives of importance and INC subscales as present incentives, then it would appear that the existence of present incentives is more important in predicting present satisfaction than ideal incentives.

The regression and discriminant analyses using independent EWCS and INC subscales as predictor variables take into account the extent of overlapping variance between predictors themselves and between predictors and the criterion variable in assigning weights to each of the variables. These procedures look at interrelationships and weight variables accordingly to maximize linear prediction or discrimination, but do not look at the magnitude of discrepancies between variables. The intercorrelation matrices in Appendix E indicate that the congruence between EWCS and INC subscales in terms of overlapping variance is very low. With the exception of EWCS 4 and INC 4, only one other correlation coefficient of the 24 possible between paired EWCS and INC subscales is above .25 (the correlation between EWCS 3 and INC 3 for secondary females is .30). Indications are that no strong congruencies exist between motivational subscales of importance to individuals and incentives received in the job situation for five of the six subscales.

As previously mentioned, analyses on the independent subscales take congruencies in terms of overlapping variances into account, but not congruencies or discrepancies in terms of differences in the magnitude of raw scores for the matched EWCS and INC subscales. To investigate this interaction of paired subscale scores as they relate to job satisfaction, several analyses were performed on discrepancy scores (EWCS - INC subscale scores). For all four groups large positive mean discrepancies existed for subscales 2 and 6 indicating that the desirability for competition and reward of success was higher than perceived existence in the job situation and that the importance attached to physical surroundings was considerably greater than perceived existence. Positive discrepancy scores also existed for subscales 1 and 4, but the magnitude was not as great as for 2 and 6. The mean discrepancy between importance of

work pressure and its perceived existence in the job (subscale 3) was negative for all groups indicating that work pressure existed in excess of its importance as a motivating force. The mean difference scores between EWCS 5 and INC 5 were extremely small, but exhibited a pattern between sexes as the mean discrepancy scores were positive for males and negative for females.

Of the six subscales, 1, 3, and 6 contributed significantly to the prediction for secondary males and females and elementary females as did PLI. The general conclusion indicated is that individuals who have a lower positive discrepancy score (not necessarily negative) between the importance and existence of potential for personal challenge and development and surround concern, a smaller negative discrepancy between importance and existence of work pressure, and a more centered concern with the job score higher on the job satisfaction scale.

This conclusion also is supported by the results of the discriminant analysis. When the distribution of satisfaction scores is dichotomized into low and high satisfaction groups, the high satisfaction group mean discrepancy scores are always closer to the midpoint of no discrepancy for subscales 1, 3, and 6 than are the means for the low satisfaction group. These relationships were illustrated in Figures 1, 2, 3, and 4.

Also confirming this relationship, the MANOVA and subsequent subanalyses indicated that subscales 1, 3, and 6 and PLI discriminate between high and low satisfaction groups, but do not do so differentially for either sex, teaching level, or sex by teaching level combinations. In contrast the mean discrepancy score on subscale 5 for low satisfaction elementary males was more negative than for the other three groups while for high satisfaction groups the mean discrepancy was positive and higher for elementary males than secondary males and for both male groups higher than for females (Figure 5). This result corresponds with the high weight given subscale 5 in the discriminant analysis for elementary males. When satisfaction is low for elementary males there exists a greater amount of uncertainty than what is important, but when satisfaction is high the amount of existing uncertainty in the job is less than perceived importance. This relationship appears to hold for secondary males, but it is not as evident as for elementary males. Basically, no difference appears to exist between low and high satisfied elementary and secondary females on subscale 5.

Elementary males appear to deviate in the pattern of relationships evident in the other three groups. In addition to subscale 5 discrepancy scores which were important in discriminating between high and low satisfaction elementary males, PLI contributes significantly in all analyses. Otherwise the other variables are not as potent in relating to job satisfaction for elementary males as for the other groups.

While the intention of this study was not to test Herzberg et al.'s two factor theory, the resulting importance of INC subscale 6, Surround Concern, indicates contradictory implications. As a hygiene factor, the existence of incentives relating to physical surroundings should decrease dissatisfaction, but improve satisfaction minimally. Contrarily, the results of the regression and discriminant analyses, and particularly,

the results of the 2x2x2x2x2 ANOVA (Table 19) comparing high and low groups on EWCS 3 and 6, INC 3 and 6, and PLI indicate otherwise. Four interactions were statistically significant in the ANOVA with INC 6 involved in each one. Implications are that the presence of incentives relating to physical surroundings interact with an intrinsic variable (subscale 3, Tolerance for Work Pressure) in relating to higher or lower job satisfaction. Consequently, satisfaction was generally higher if high incentives in terms of physical surrounding were present. Within the high and low INC 6 groups, the level of satisfaction varied depending upon the effect of the interaction of other variables and INC 6. The interaction between INC 6, EWCS 3, and INC 3 followed an expected pattern based upon previous analyses (Figure 7). The existence of high work pressure in the job and low tolerance on the part of the individual is related to lower satisfaction whether the physical surrounding incentives are low or high, but there is relatively more satisfaction when INC 6 is high than when it is low. For the other combinations, low tolerance - low work pressure, high tolerance - low work pressure, and high tolerance - high work pressure, the satisfaction level is high and approximately equal when INC 6 is high, but when INC 6 is low, high tolerance and low work pressure combine in a higher level of satisfaction.

Contrary to expectations based on previous results, the significant interactions involving EWCS 6 and INC 6 (Figures 6 and 8) indicate that satisfaction is not at its lowest when EWCS 6 is high and INC 6 is low. Based upon these interactions and supported by the results of the regression analysis for all 14 variables, it can be concluded that the existence or nonexistence of INC 6 is related to satisfaction, but the importance expressed about physical surroundings as a motivating force (EWCS 6) is not very potent in its relationship to job satisfaction.

Additional support for the interacting relationships between the above variables can be seen in Table 18. Based upon previous results, expectations would be that an individual high on EWCS 3, EWCS 6, INC 6 and PLI and low on INC 3 would be highest on the job satisfaction scale. In contrast, a person low on EWCS 3, EWCS 6, INC 6, and PLI and high on INC 3 would be low on the job satisfaction scale. The cell means in Table 18 for the 32 Ss fitting each of these definitions follow expectations with the first group resulting in the highest mean job satisfaction (24.56) and the second group having the lowest mean job satisfaction (17.13) of the 32 groups identified.

Research Objective Four

To meet research objective four, the quasi-theory of job satisfaction presented in Figure 10 was developed from the present research findings and additional related literature. The original model that guided this study was composed of the following variables: motivation, incentives, primary life interests, and satisfaction. Three additional variables--work role, voluntarism, and ideal incentives--are postulated as being logically consistent and elaborative of the original model. In addition, many of the basic assertions of the proposed model are closely associated with the theories of instrumentality (Graen, 1969) and inequity (Adams, 1963).

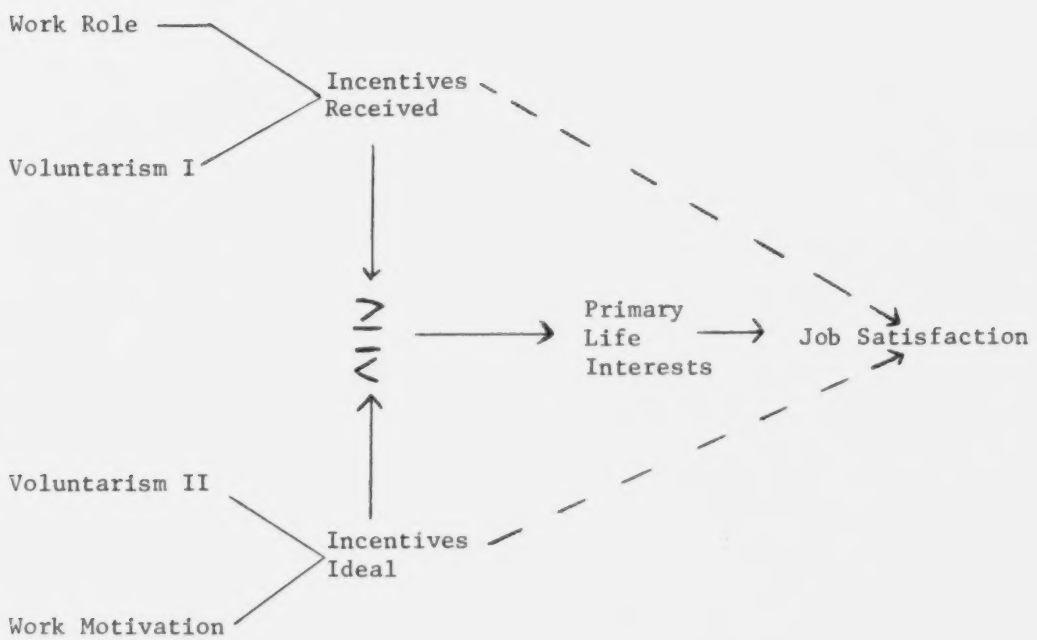

Figure 10. Proposed Quasi-Theory of Job Satisfaction

On the surface, the present model parallels Graen's (1969) instrumentality theory of work motivation with the two primary dimensions being organizational and individual. The organizational dimension is defined as the work role with a set of expected behaviors which are acceptable to the individual. Moreover, work roles must be accomplished and maintained through performing the expected behaviors in such a way that the resulting performance meets the minimum standard of behavior. The standards of appropriate behavior imply an evaluation by a hierarchical superior and an organizational contingency between the criteria of appropriate behavior and the attainment or maintenance of that work role. Finally, associated with the attainment or maintenance of each work role are incentives received. Incentives received would be outcomes accruing to a person for the attainment or maintenance of work roles. Common examples of incentives would include money, interpersonal relationships, achievement, surround conditions, work pressure and other specific and general items delineated by Barnard (1938) and Dubin (1970).

Voluntarism is a variable that is conceived as being of two types and independently related to the organizational or individual work dimension. Voluntarism I pertains to the teacher's freedom in the work role; that is, the extent to which teachers find the specific tasks to be constrained or restricted by the organization. Examples for teachers would include building and subject assignments, methodology, curriculum materials, and classroom control. It seems reasonable to posit that the level

of voluntarism interacting with the work role expections would yield a varying amount and type of incentives received by the individual.

On the other hand, voluntarism II is primarily related to the individual dimension of the proposed model. Dubin (1968) questioned the assertion that individuals voluntarily choose to work but rather many are forced by economic reasons to work. Also, individuals may have job opportunities outside their preferred profession. Consequently, using the foregoing assertions as a foundation, voluntarism II is defined as whether a person perceives limited flexibility in job opportunities or must work for economic reasons. Although voluntarism II probably would have the most variance for female employees, it seems reasonable to assume some variability for male employees. Therefore, the types and amounts of ideal incentives would be affected by this variable. If voluntarism II is low on the economic dimension, then financial incentives would be given additional priority by the individual.

For the proposed model, the conceptualization of work motivation developed by Herzberg must be modified to conform to the findings of the present study. Rather than the motivators and hygienes being mutually exclusive, the two types interact to assist in the determination of the ideal incentives. Therefore, the relative ranking given to a particular incentive in a set of incentives will vary from person to person. From the foregoing discussion, the hypothesis can be made that voluntarism II and work motivation will determine what the individual ideally wants in the form of incentives from the organization.

To this point, relationships have only been stated for each dimension independently of the other. Three alternative relationships between the organizational and individual dimensions are indicated in Figure 10. First, the dotted lines indicate that by simply merging or regressing the incentives received and the incentives ideal a significant prediction of satisfaction would be possible. However, the current findings using discriminant and regression analyses would question the value of this assertion. A better assertion would be that merging the incentives received and incentives ideal with primary life interests as an intervening variable would increase the prediction of satisfaction. However, when the theoretical formulations of inequity as presented by Adams (1963) are considered new predictive power is added.

A basic tenet of the inequity theory is that an individual exchanges his services in the form of education, experience, skill, and effort for incentives. The individual then determines if the exchange was equitable. An extension of the foregoing is that inequity is a perceptual process of an individual subjectively evaluating the exchange of his services for incentives from a frame of reference of what he ideally wants in return. However, a complicating factor for the inequity relationship is the interaction between psychological (individual) and logical (organizational) characteristics. Consequently, a one to one relationship does not exist. However, it does seem reasonable to assert that a rough continuum would exist; that is, perceived inequity would rise as the incentives received became more divergent from the incentives ideal. Consequently, the best prediction of satisfaction would be the inequity between incentives received and incentives ideal with primary life interests being an

intervening variable. Furthermore, the higher the primary life interests are in the job, the higher the satisfaction.

The following relationships have been postulated among the variables composing the proposed quasi-theory of job satisfaction.

(a) Voluntarism I and work role expectations determine what incentive the individual will actually receive.
(b) Voluntarism II and work motivation determine what incentives the individual ideally desires.
(c) The inequity between incentives real and incentives ideal with primary life interests as an intervening variable will predict job satisfaction.

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APPENDIX A

Pilot Study Instruments: Educational Work Components Study, Incentive Scale, and Personal Attitudes

Pilot Educational Work Components Study

Directions:

People differ greatly in the things they want in a job, and jobs differ greatly, even within the same school. This form is designed to gather information about things you consider important and desirable in an ideal job in the public schools.

Give an answer to every item on the questionnaire even if you have to guess. Work quickly.

Response Categories:

Extremely undesirable. Would never take job.	Undesirable. Would avoid the job.	Neither desirable or undesirable.	Desirable. Would favor the job.	Extremely desirable. Would favor job greatly.

Ideally, I prefer a job in which. . .

Item:

1. I could get fired easily, but the work would be very interesting.
2. the emphasis would be on carrying out clearly outlined school district policies.
3. salary increases would be strictly a matter of how much I accomplished for the school district.
4. I could not be sure I could keep my job as long as I want it.
5. the lighting would be good.
6. the school district would not be stable.
7. trouble might come up that I would have to take care of myself, even outside regular hours.
8. the community would have good recreational facilities.
9. the school district has in the recent past been having a hard time holding its position.
10. I would be involved in managing a small group of people doing routine jobs.
11. the school district would be involved in heavy internal competition.
12. the work might be excessive sometimes.
13. there would be opportunity for creative work.

14. the work would be routine, but not hard to do.

15. salary increases would be determined by the amount of effort exerted.

16. the climate would be pleasant.

17. the community would be a wonderful place to raise a family.

18. my schedule of hours might have to be flexible in response to the amount of work.

19. the work might run out, but it would be extremely interesting while it lasted.

20. the pay would not be high, but the job would be secure.

21. persons would be terminated if they do not produce quality work.

22. I might sometimes have to take work home with me.

23. the physical working conditions would be attractive.

24. I would have an opportunity to really accomplish something, even if others wouldn't know about it.

25. I could get fired easily.

26. the work would be routine, but the initial salary would be high.

27. the work might build up "pressures" on me.

28. the nature of the job would change because the school district changes.

29. the fringe benefits would be very good.

30. the ventilation would be modern.

31. there would be emphasis on individual ability.

32. there would be little permanency of positions.

33. I would be under a tenure system.

34. the school district would encourage further specialized work.

35. there would be opportunities to earn bonuses.

36. promotions would come automatically.

37. competition would be open and encouraged.

38. the community would have a good social and cultural life.

39. I would have a chance to further my formal education.

40. I could get fired easily, but the rewards would be high.

41. the work would be routine, but highly respected in the community.

42. I would always have a chance to learn something new.

43. there might occasionally be some physical danger.

44. the supervisors would be nice people.

45. I would need to change to keep up with changes in the work.

46. the job would be insecure.

47. the salary increases would be regularly scheduled.

48. the work might come in big pushes sometimes.

49. there would be emphasis on the actual production record.

50. I might be on call when there is pressure to get jobs done.

51. the retirement plan would be good.

52. salary increases would be a matter of how much effort you put in.

53. rewards would be high, but if one loses his job it would be very difficult to get another one.

54. there would be emphasis on satisfying superiors by carrying out school policy.

55. I would have nice people for co-workers.

56. there would be emphasis on originality.

Pilot Incentive Scale

Directions:

People also differ greatly in the incentives or rewards they receive. This form is designed to gather information about the incentives or rewards you are presently receiving from the school district.

Again, please answer every item. Work quickly.

Response Categories:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

In my present job:

Item:

1. the retirement plan is good.
2. there is emphasis on originality.
3. the emphasis is on carrying out clearly outlined school district policies.
4. I could get fired easily.
5. promotions come automatically.
6. I have an opportunity to really accomplish something, even if others don't know about it.
7. there is emphasis on satisfying superiors by carrying out school policy.
8. there is opportunity for creative work.
9. there is an emphasis on individual ability.
10. there is emphasis on the actual production record.
11. the work comes in big pushes sometimes.
12. I am not sure I can keep my job as long as I want it.
13. the community has good recreationsl facilities.
14. the lighting is good.
15. persons are terminated if they do not produce quality work.
16. there are opportunities to earn bonuses.

17. the work is excessive sometimes.

18. I always have a chance to learn something new.

19. the school district encourages further specialized work.

20. I am on call when there is pressure to get jobs done.

21. I am involved in managing a small group of people doing routine jobs.

22. I could get fired easily, but the rewards are high.

23. the work is routine, but not hard to do.

24. the work is routine, but highly respected in the community.

25. the physical working conditions are attractive.

26. the pay is not too high, but the job is secure.

27. I have a chance to further my formal education.

28. the community has a good social and cultural life.

29. the community is a wonderful place to raise a family.

30. I could get fired easily, but the work is very interesting.

31. the work is routine, but the initial salary was high.

32. I am under a tenure system.

33. competition is open and encouraged.

34. the ventilation is modern.

35. salary increases are determined by the amount of effort exerted.

36. the work builds up "pressures" on me.

37. there is little permanency of positions.

38. the supervisors are nice people.

39. rewards are high, but if I lost this job, it would be very difficult to get another one.

40. trouble might come up that I have to take care of myself, even outside regular hours.

41. I sometimes have to take work home with me.

42. my schedule is flexible in response to the amount of work.

43. the nature of the job changes because the school district changes.

44. there occasionally is some physical danger.

45. I need to change to keep up with changes in the work.

46. salary increases are strictly a matter of how much I accomplish for the school district.

47. the fringe benefits are very good.

48. salary increases are a matter of how much effort you put in.

49. the work might run out, but it is extremely interesting while it lasts.

50. the salary increases are regularly scheduled.

51. the school district is involved in heavy internal competition.

52. the school district has in the recent past been having a hard time holding its position.

53. the school district is not stable.

54. I have nice people for co-workers.

55. the job is insecure.

56. the climate is pleasant.

Pilot Personal Attitudes

Directions:

Finally, we are interested in what you feel about certain things. This form is designed to gather information about how teachers feel about their jobs in the public schools.

Please check the one answer that best describes your feelings:

Response Categories:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

Items:

1. I really enjoy working with my students.

2. The "stress and strain" resulting from teaching students reduces the enjoyment of teaching.

3. I am somewhat dissatisfied with my job.

4. I often think of changing to another job within the field of education.

5. My main interests in life are closely related to my job in the school.

6. I have to be gainfully employed whether I like it or not.

7. My job is more important than my family.

8. If I came into enough money so that I could live comfortably without working, I would continue my present job.

9. Educators with my professional qualifications have to take any school position that is available.

10. I find my contacts with students highly satisfying.

11. If I came into enough money so that I could live comfortably without working, I would quit my job.

12. I believe things around home are more important than my job at school.

13. My students have confidence in my professional ability.

14. As I evaluate my future as an educator, I feel my level of satisfaction will increase.

15. Educators like me can choose the school district in which they work.

16. I often think of changing to another job outside the field of education.

17. When I am worried, it is usually about things related to my job.

18. In talking to friends, I most like to talk about events related to my job.

19. When I was hired for my present job, I had no other job opportunities in the public schools.

20. Teaching gives me a great deal of personal satisfaction.

21. An educator can find a suitable job in the public schools.

APPENDIX B

Item Factor Loadings and Subscale Reliability Estimates for the Educational Work Components Study Using the Pilot Study Data

Factor (Subscale) Identification

1. Potential for Personal Challenge and Development.
2. Competitiveness Desirability (& Reward of Success).
3. Tolerance for Work Pressure.
4. Conservative Security.
5. Willingness to See Reward in Spite of Uncertainty vs. Avoidance.
6. Surround Concern.

Sub-Scale	Item No.	Factor Loadings for Each Item I	II	III	IV	V	VI
	56	.73					
	39	.72					
	13	.67					
1	42	.62					
	34	.60					
	31	.60					
	24	.48					
	45*	.39					
						.27	
	15		.78				
	52		.74				
	3		.60				
	49		.51				
2	21		.41				
	11**	.46		.31			
	35	.40	.44				
	37			.50			
	22			.70			
	12			.65			
3	27			.63			
	48			.49			
	50			.48			
	7**			.30			
	18**			.32			
	28**			.31			
	43*					.41	
						.35	

(Continued)

Sub-Scale	Item No.	Factor Loadings for Each Item I	II	III	IV	V	VI
	26				.73		
	41				.71		
	14				.71		
	10				.53		
	36				.49		
	54				.46		
4	47				.44		
	33				.43		
	2*			.35	.40		
	20*				.35		
	40					.71	
	46					.70	
	4					.64	
	25					.63	
5	1					.61	
	32					.56	
	19					.52	
	53					.51	
	6*					.39	
	9*					.31	
	23						.66
	17						.66
	30						.63
	38						.61
6	16						.60
	8						.58
	44						.56
	55						.54
	5						.52
	29						.42
	51*	.27			.37		.36
Subscale alpha coefficients		.80	.78	.74	.76	.80	.83

*Items deleted from the final form of the instrument.
**Items reworded in the final form of the instrument.

APPENDIX C

Item Factor Loadings and Subscale Reliability Estimates for the Personal Attitudes Section Using the Pilot Study Data

Satisfaction Items	Factor Loadings for Each Item			
	I	II	III	IV
11*	.64			-.40
8	-.63			.41
4	.60			
3	.59			
2	.53	.32		
1	-.48	-.32		
16	.45			
10*	-.41	-.44		
20*			.62	
14*		-.29	.36	
13*		-.57		
Central Life Interests Items				
18			.69	
17			.61	
12**				.75
7*				.71
5				.34
Voluntarism Items				
6*	.48			
21*			.56	
15*			.44	
9*		.69		
19*		.44		

*Items deleted from the final form of the instrument.
**Items reworded in the final form of the instrument.

APPENDIX D

Final Instruments and Letters of Communication

SCHOOL OF EDUCATION
THE UNIVERSITY OF KANSAS
Bailey Hall
Lawrence, Kansas 66044

Dear Educator:

This questionnaire is part of a coordinated research on values and self attitudes that is taking place in several school districts. Your name along with about 3,500 other individuals was selected at random from a list of over 26,000 educators. Data are being collected systematically to facilitate our understanding of factors that underlie the reasons persons select their vocations.

Information gathered in this questionnaire will be used for research purposes only.

There are no "right" or "wrong" answers in this questionnaire. The only "right" answer is what you believe to be true. Answer as accurately as you can what you believe. Please give only your opinions with a check in the proper blank on the questionnaire.

Our pretests indicate that most persons complete this questionnaire in less than 30 minutes. If you answer quickly, you should be finished in less time.

Please mail the questionnaire back as soon as possible. A self-addressed, postage paid envelope is enclosed for returning the questionnaire.

Cecil Miskel
Project Director

Douglas Glasnapp
Data Analyst

Richard Hatley
Research Coordinator

This survey will be completed in approximately 10 months. If you would like to receive a report of the research, please check the box below. (So that the report can be mailed to you and to guarantee anonymity, your name has been converted to a code number.)

Please send me a copy of the research report.

Yes_____ No_____

Code Number_____

PART I - BACKGROUND INFORMATION

(Please remember, all information in this questionnaire is confidential and will be used for research purposes only.)

1. Your age (years): _____

2. Sex: _____Male _____Female

3. Education
   _____Less than Bachelors Degree
   _____Bachelors Degree
   _____Bachelors Degree Plus
   _____Masters Degree
   _____Masters Degree Plus
   _____Doctorate

4. Marital Status: _____Single _____Married _____Other

5. If you are married, is your spouse gainfully employed:

   _____Yes _____No

6. If yes, what is his/her occupation? _____

7. Check one of the following categories that best describes the level of your primary job assignment
   _____Elementary--Grades K-6
   _____Junior High--Grades 7-9
   _____High School--Grades 10-12
   _____All levels--Grades K-12
   _____Other (Please Specify)

8. Position
   _____Teacher
   _____Principal, Assistant or Associate Principal
   _____Central Office Administrator
   _____Counselor
   _____Other (Please Specify)

9. _____Years Experience as an Educator

10. _____Years Experience in Present Position

11. Considering all aspects of your life, would you consider your job as being of primary importance?

    _____Yes _____No

12. Do you have to be gainfully employed?

_____Yes _____No

(If yes, answer question 13.)
(If no, skip to question 14.)

13. If you answered yes on question 12, do you perceive that you have to be an educator?

_____Yes _____No

14. When you were hired for your present position, did you have any other job opportunities?

_____Yes _____No

(If you are presently an administrator skip the next three questions.)

15. If you are now a teacher, would you consider accepting an administrative position in the public schools?
_____Yes, I would like the position very much.
_____Maybe
_____Neutral, no feelings, have not considered the possibility.
_____Probably not.
_____No, I have no interest in the possibility.

16. Are you teaching in the subject area of your primary interest?

_____Yes _____No

17. Did you have any choice in your school assignment?

_____Yes _____No

PART II - PRESENT JOB

People differ greatly in the incentives or rewards they receive for their work. This form is designed to gather information about the incentives or rewards you are presently receiving from the school district.

Please answer every item. Work quickly.

Response Categories:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Disagree

In my present job . . . . . .

1. there is emphasis on originality.
2. I could get fired easily.
3. promotions come automatically.
4. I have an opportunity to really accomplish something, even if others don't know about it.
5. there is emphasis on satisfying superiors by carrying out school policy.
6. there is opportunity for creative work.
7. there is an emphasis on individual ability.
8. there is emphasis on the actual production record.
9. the work comes in big pushes sometimes.
10. I am not sure I can keep my job as long as I want it.
11. the community has good recreational facilities.
12. the lighting is good.
13. persons are terminated if they do not produce quality work.
14. there are opportunities to earn bonuses.
15. the work is excessive sometimes.
16. I always have a chance to learn something new.
17. the school district encourages further specialized work.

18. I am on call when there is pressure to get jobs done.

19. I am involved in managing a small group of people doing routine jobs.

20. I could get fired easily, but the rewards are high.

21. the work is routine, but not hard to do.

22. the work is routine, but highly respected in the community.

23. the physical working conditions are attractive.

24. I have a chance to further my formal education.

25. the community has a good social and cultural life.

26. the community is a wonderful place to raise a family.

27. I could get fired easily, but the work is very interesting.

28. the work is routine, but the initial salary was high.

29. I am under a tenure system.

30. competition is open and encouraged.

31. the ventilation is modern.

32. salary increases are determined by the amount of effort exerted.

33. the work builds up "pressures" on me.

34. there is little permanency of positions.

35. the supervisors are nice people.

36. rewards are high, but if I lost this job, it would be very difficult to get another one.

37. school related problems might come up that I have to take care of myself, even outside regular hours.

38. I sometimes have to take work home with me.

39. the schedule is flexible in response to the amount of work.

40. the amount of work varies.

41. salary increases are strictly a matter of how much I accomplish for the school district.

42. the fringe benefits are very good.

43. salary increases are a matter of how much effort you put in.

44. the work might run out, but it is extremely interesting while it lasts.

45. the salary increases are regularly scheduled.

46. the school district is involved in heavy professional competition.

47. I have nice people for co-workers.

48. the job is insecure.

49. the climate is pleasant.

PART III - THE IDEAL JOB

People also differ greatly in the things they want in a job, and jobs differ greatly, even within the same school. This form is designed to gather information about things you consider important and desirable in an ideal job in the public schools.

Give an answer to every item on the questionnaire even if you have to guess. Work quickly.

Response Categories:

1. Extremely undesirable. Would never take job.
2. Undesirable. Would avoid job.
3. Neither desirable or undesirable.
4. Desirable. Would favor the job.
5. Extremely desirable. Would favor job greatly.

Ideally, I prefer a job . . . . . .

1. I could get fired easily, but the work would be very interesting.

2. salary increases would be strictly a matter of how much I accomplished for the school district.

3. I could not be sure I could keep my job as long as I want it.

4. the lighting would be good.

5. school related problems might come up that I would have to take care of myself outside regular hours.

6. the community would have good recreational facilities.

7. I would be involved in managing a small group of people doing routine jobs.

8. the school district would be involved in heavy professional competition.

9. the work might be excessive sometimes.

10. there would be opportunity for creative work.

11. the work would be routine, but not hard to do.

12. salary increases would be determined by the amount of effort exerted.

13. the climate would be pleasant.

14. the community would be a wonderful place to raise a family.

15. the schedule of hours might have to be flexible in response to the amount of work.

16. the work might run out, but it would be extremely interesting while it lasted.

17. persons would be terminated if they do not produce quality work.

18. I might sometimes have to take work home with me.

19. the physical working conditions would be attractive.

20. I would have an opportunity to really accomplish something, even if others wouldn't know about it.

21. I could get fired easily.

22. the work would be routine, but the initial salary would be high.

23. the work might build up "pressures" on me.

24. the amount of work would vary.

25. the fringe benefits would be very good.

26. the ventilation would be modern.

27. there would be emphasis on individual ability.

28. there would be little permanency of positions.

29. I would be under a tenure system.

30. the school district would encourage further specialized work.

31. there would be opportunities to earn bonuses.

32. promotions would come automatically.

33. competition would be open and encouraged.

34. the community would have a good social and cultural life.

35. I would have a chance to further my formal education.

36. I could get fired easily, but the rewards would be high.

37. the work would be routine, but highly respected in the community.

38. I would always have a chance to learn something new.

39. the supervisors would be nice people.

40. the job would be insecure.

41. the salary increases would be regularly scheduled.

42. the work might come in big pushes sometimes.

43. there would be emphasis on the actual production record.

44. I might be on call when there is pressure to get jobs done.

45. salary increases would be a matter of how much effort you put in.

46. rewards would be high, but if one loses his job it would be very difficult to get another one.

47. there would be emphasis on satisfying superiors by carrying out school policy.

48. I would have nice people for co-workers.

49. there would be emphasis on originality.

PART IV - PERSONAL ATTITUDES

Finally, we are interested in what you feel about certain things. This form is designed to gather information about how teachers feel about their jobs in the public schools.

Please check the one answer that best describes your feelings:

Response Categories:

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

1. I am somewhat dissatisfied with my job.

2. I really enjoy working with my students.

3. My primary life interests lie <u>outside</u> of my job at school.

4. The "stress and strain" resulting from teaching students reduces enjoyment of teaching.

5. I often think of changing to another job <u>within</u> the field of education.

6. My main interests in life are closely related to my job in the school.

7. I often think of changing to another job <u>outside</u> the field of education.

8. If I came into enough money so that I could live comfortably without working, I would continue my present job.

9. When I am worried, it is usually about things related to my job.

10. I believe that other things are more important than my job at school.

11. Most of my energy is directed toward my job.

12. In talking to friends, I most like to talk about events related to my job.

13. My central concerns are job-related.

THANK YOU

Cover Letter for First Follow-up Mailing

SCHOOL OF EDUCATION
THE UNIVERSITY OF KANSAS
Bailey Hall
Lawrence, Kansas 66044

Dear Educator:

About three weeks ago you were one of the public school teachers who received a survey questionnaire in connection with a basic research project in educational administration being conducted at the University of Kansas. It is hoped that this project can produce usable knowledge about how public schools function. Furthermore, we have attempted to ask for information vital only to the research, and which only public school teachers can furnish. The information will be used for research purposes only.

These forms do not take long to complete. The time required by most individuals varies from 30 to 40 minutes. A duplicate questionnaire has been enclosed in case you have misplaced the original. Your prompt attention and cooperation will be greatly appreciated. Your completed questionnaire is essential to the success of this research.

Thank you.

Sincerely,

Cecil Miskel
Project Director

Cover Letter for Second Follow-up Mailing

SCHOOL OF EDUCATION
THE UNIVERSITY OF KANSAS
Bailey Hall
Lawrence, Kansas 66044

Dear Educator:

About six weeks ago you were one of 3500 school employees who received a survey questionnaire in connection with a basic research project in educational administration being conducted at the University of Kansas. These forms do not take long to complete. The time required by most individuals varies from 30 to 40 minutes.

Enclosed is a copy of another questionnaire in case you have misplaced the original. Your response will be strictly confidential. No individual or school will be named in any report of the research.

Your prompt attention and cooperation will be greatly appreciated. Your completed questionnaire is essential to the success of this research.

Thank you.

Sincerely,

Cecil Miskel
Project Director

Cover Letter for Non-Respondent Sample

SCHOOL OF EDUCATION
THE UNIVERSITY OF KANSAS
Bailey Hall
Lawrence, Kansas 66044

Dear Educator:

Sometime during the last two months, you were mailed a questionnaire designed to facilitate an understanding of the reasons educators select their vocations. We urge you to take time (less than 30 minutes) to respond to the questionnaire. Your perceptions are essential to the project.

Your name was randomly selected from a list of over 26,000 educators in Kansas. In addition, your response to this questionnaire is completely anonymous and the information will be used for research purposes only.

Your participation in this endeavor is solicited and will be appreciated. A self-addressed, postage paid envelope is enclosed for your convenience.

Sincerely,

Cecil Miskel
Project Director
Assistant Professor

Douglas Glasnapp
Data Analysis
Assistant Professor

Richard Hatley
Research Coordinator
Assistant Professor

P.S. If you are not currently employed as an educator, please return the blank questionnaire.

APPENDIX E

Intercorrelation Matrices: EWCS Subscales, INC Subscales, Job Satisfaction and PLI for All Sex by Teaching Level Groups

Elementary Males

Variable Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000	0.485	0.398	-0.295	0.070	0.444	-0.062	-0.240	0.055	-0.075	-0.289	-0.091	-0.066	0.057
2		1.000	0.553	-0.056	0.362	0.121	0.209	-0.051	0.351	0.077	-0.028	-0.061	0.026	0.372
3			1.000	-0.281	0.463	-0.036	0.096	-0.121	0.192	0.044	-0.244	-0.073	0.103	0.088
4				1.000	-0.107	0.117	0.282	0.262	0.144	0.265	0.235	0.382	0.053	0.316
5					1.000	-0.287	0.154	-0.012	0.168	-0.078	0.208	-0.005	0.068	0.174
6						1.000	0.035	-0.059	0.104	0.108	-0.135	0.115	-0.095	0.075
7							1.000	0.349	0.217	-0.055	0.027	0.475	0.291	0.274
8								1.000	0.091	0.138	0.346	0.259	0.139	0.148
9									1.000	0.059	0.290	-0.008	0.001	0.400
10										1.000	-0.071	0.058	-0.126	0.081
11											1.000	-0.221	-0.173	0.114
12												1.000	0.315	0.328
13													1.000	0.275
14														1.000

Elementary Females

Variable Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000	0.358	0.219	-0.131	0.017	0.546	0.221	-0.106	0.262	-0.041	-0.096	0.043	0.123	0.108
2		1.000	0.309	-0.074	0.333	0.204	0.029	0.007	0.184	0.054	-0.016	-0.063	0.007	-0.008
3			1.000	0.105	0.365	0.042	0.151	0.091	0.244	0.028	0.070	0.123	0.241	0.146
4				1.000	-0.003	0.150	0.048	0.244	0.026	0.352	0.223	0.103	0.040	0.132
5					1,000	-0.133	0.019	0.099	0.049	0.080	0.247	-0.023	-0.008	-0.031
6						1.000	0.139	-0.002	0.170	0.059	-0.067	0.102	0.022	0.093
7							1.000	0.282	0.182	0.099	-0.130	0.498	0.304	0.072
8								1.000	0.139	0.321	0.299	0.218	0.042	0.015
9									1.000	0.116	0.103	0.066	-0.094	0.189
10										1.000	0.158	0.196	-0.071	-0.045
11											1.000	-0.161	-0.077	0.106
12												1.000	0.313	0.088
13													1.000	0.222
14														1.000

Secondary Males

Variable Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000	0.377	0.252	-0.122	-0.004	0.488	0.221	-0.130	0.161	-0.084	-0.069	0.125	0.156	0.124
2		1.000	0.390	-0.107	0.269	0.250	0.012	-0.142	0.198	-0.037	-0.036	0.024	0.062	0.120
3			1.000	-0.077	0.337	0.064	0.214	-0.040	0.187	0.002	-0.048	0.162	0.221	0.152
4				1.000	-0.182	0.191	-0.030	0.198	-0.103	0.295	0.147	0.019	-0.018	0.017
5					1.000	-0.230	-0.055	-0.002	0.003	0.006	0.130	-0.023	0.032	-0.045
6						1.000	0.136	-0.077	0.104	-0.025	-0.036	0.074	0.052	0.217
7							1.000	0.284	0.099	0.048	-0.226	0.535	0.395	0.178
8								1.000	0.109	0.306	0.184	0.292	0.102	0.130
9									1.000	-0.030	0.146	-0.024	-0.082	0.149
10										1.000	0.025	0.083	-0.064	0.004
11											1.000	-0277	-0.184	0.040
12												1.000	0.349	0.160
13													1.000	0.319
14														1.000

Secondary Females

Variable Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1.000	0.390	0.257	-0.093	0.065	0.507	0.116	-0.127	0.097	-0.016	-0.093	-0.043	0.090	0.129
2		1.000	0.320	-0.166	0.276	0.191	0.072	-0.042	0.124	-0.004	-0.085	-0.005	0.026	0.124
3			1.000	-0.003	0.279	0.156	0.167	0.077	0.300	0.067	0.045	0.137	0.168	0.189
4				1.000	-0.202	0.206	0.015	0.165	-0.045	0.409	0.136	0.107	0.024	0.069
5					1.000	-0.193	0.016	0.113	0.061	-0.070	0.177	0.005	-0.054	-0.042
6						1.000	0.058	-0.054	0.042	0.100	-0.094	0.013	0.004	0.122
7							1.000	0.303	0.093	-0.004	-0.225	0.524	0.299	-0.043
8								1.000	0.089	0.212	0.228	0.307	0.046	-0.002
9									1.000	0.018	0.105	0.081	-0.122	0.179
10										1.000	0.107	0.145	0.020	-0.050
11											1.000	-0.172	-0.101	0.102
12												1.000	0.270	0.010
13													1.000	0.151
14														1.000

APPENDIX F

Intercorrelation Matrices: Discrepancy Scores for EWCS Subscales, INC Subscales, Job Satisfaction, and PLI for All Sex by Teaching Level Groups

Elementary Males

Variable Number	1	2	3	4	5	6	7	8
1	1.000	0.321	0.225	-0.357	0.066	0.507	-0.269	-0.188
2		1.000	0.222	-0.166	0.411	0.252	-0.062	0.203
3			1.000	-0.298	0.510	-0.017	0.080	-0.245
4				1.000	-0.235	-0.257	0.138	0.232
5					1.000	-0.223	0.187	0.058
6						1.000	-0.334	-0.248
7							1.000	0.275
8								1.000

Elementary Females

Variable Number	1	2	3	4	5	6	7	8
1	1.000	0.375	-0.001	-0.001	-0.023	-0.048	-0.193	0.007
2		1.000	0.102	-0.059	0.323	0.258	-0.022	-0.015
3			1.000	0.119	0.231	-0.102	0.272	-0.037
4				1.000	-0.116	0.113	0.096	0.159
5					1.000	-0.129	0.056	-0.111
6						1.000	-0.257	-0.019
7							1.000	0.222
8								1.000

Secondary Males

Variable Number	1	2	3	4	5	6	7	8
1	1.000	0.376	-0.038	0.036	-0.091	0.462	-0.266	-0.085
2		1.000	0.170	0.004	0.248	0.274	-0.021	0.002
3			1.000	0.000	0.309	-0.142	0.235	-0.003
4				1.000	-0.205	0.155	0.036	0.012
5					1.000	-0.253	0.165	-0.064
6						1.000	-0.264	-0.005
7							1.000	0.319
8								1.000

Secondary Females

Variable Number	1	2	3	4	5	6	7	8
1	1.000	0.349	0.029	-0.062	-0.091	0.544	-0.204	0.116
2		1.000	0.120	-0.102	0.267	0.268	-0.011	0.093
3			1.000	0.003	0.175	0.022	0.243	-0.005
4				1.000	-0.135	0.085	0.006	0.110
5					1.000	-0.157	0.040	-0.114
6						1.000	-0.217	0.065
7							1.000	0.151
8								1.000